

**IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF ILLINOIS
EASTERN DIVISION**

IN RE NATIONAL COLLEGIATE ATHLETIC ASSOCIATION STUDENT- ATHLETE CONCUSSION INJURY LITIGATION

MDL No. 2492

Master Docket No. 1:13-cv-09116

This Document Relates to All Cases

Judge John Z. Lee

Magistrate Judge Geraldine Soat Brown

**EXHIBITS TO
RESPONSE OF THE NCAA TO
NICHOLS' JULY 15, 2015 SUBMISSION**

[REDACTED VERSION, PUBLICLY FILED]

- A. Declaration of Johanna Spellman
- B. Declaration of Dr. Julian E. Bailes
- C. Declaration of Ross Mishkin
- D. Discovery Status in Individual NCAA Concussion-Related Cases
- E. Class Definitions in Consolidated Cases Now Before the Court
- F. Issues and Defenses Likely to Arise in Individual Cases
- G. Cases on Which Nichols Principally Relies to Argue that Manageability Concerns Do Not Preclude Certification of a Personal Injury Class
- H. State Law Rules Governing Duty and Contact Sports
- I. Sample Pattern Jury Instructions

EXHIBIT A

**UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF ILLINOIS
EASTERN DIVISION**

IN RE NATIONAL COLLEGIATE)	MDL No. 2492
ATHLETIC ASSOCIATION STUDENT-)	
ATHLETE CONCUSSION INJURY)	Master Docket No. 1:13-cv-09116
LITIGATION)	
)	This Document Relates To:
)	All Cases
)	
)	Judge John Z. Lee
)	
)	Magistrate Judge Geraldine Soat Brown

DECLARATION OF JOHANNA SPELLMAN

I, Johanna Spellman, declare as follows:

1. I am an attorney with Latham & Watkins LLP, counsel of record for the National Collegiate Athletic Association (“NCAA”). On July 30, 2014, I was appointed by the Court as Liaison Counsel for the NCAA. I make this declaration based upon my personal knowledge, and I am competent to testify as to its contents.

2. On April 14, 2015, the Class Representatives, on behalf of themselves and as representatives of the Settlement Class, filed a joint motion with the NCAA for preliminary approval of the Amended Settlement Agreement.¹ (Dkt. #154).

3. On May 22, 2015, the NCAA provided counsel for Plaintiff Anthony Nichols with all of the written discovery and deposition transcripts from the Arrington case. It is also my understanding that Class Counsel previously provided Mr. Nichols' counsel with documents produced by the parties and by non-parties in the Arrington case, totaling almost 200,000 pages, as well as a database containing student-athlete concussion and head injury data that had been

¹ Unless otherwise indicated, capitalized terms have the meaning ascribed to them in the Amended Settlement Agreement, which itself is Exhibit 1 to the joint motion for preliminary approval filed with the Court on April 14, 2015. See Am. Settlement Agt. (Dkt. #154-1).

produced by the NCAA in the Arrington case (i.e., the “Injury Surveillance System”). In addition, the NCAA provided additional materials to Mr. Nichols’ counsel.

4. On May 8, 2015, Mr. Nichols filed a Motion for Leave to File *Instantly* an Enlarged Response to Plaintiffs’ Motion for Preliminary Approval of Class Settlement. (Dkt. #178).

5. On May 14, 2015, the Court struck Mr. Nichols’ May 8, 2015 motion. (Dkt. #182). The Court granted Mr. Nichols until May 27, 2015 to file a memorandum discussing his objections to the proposed Settlement other than his claim that the personal injury claims of the Settlement Class can be certified under Fed. R. Civ. P. 23(b)(3). Id. The Court also granted Mr. Nichols leave to file a separate memorandum addressing his claim that the personal injury claims of the Settlement Class can be certified under Fed. R. Civ. P. 23(b)(3). Id.

6. On July 15, 2015, Mr. Nichols filed his Second Objections to Plaintiffs’ Motion for Preliminary Approval of Class Settlement. (Dkt. #201). In his July 15, 2015 submission, Mr. Nichols argued that the following class could be certified under Fed. R. Civ. P. 23(b)(3):

All current and former NCAA athletes who (i) suffered a documented concussion in or after 2002 while participating in a NCAA athletic event, and (ii) thereafter received a documented diagnosis of one or more concussion-related injuries, including PCS, CTE, Alzheimer’s disease, ALS, or Parkinson’s disease.

Id. at 1.

7. On July 22, 2015, the Court adopted a proposed briefing schedule under which Mr. Nichols’ memorandum addressing the certifiability of a Rule 23(b)(3) personal injury class was due on or before July 15, 2015. (Dkt. #203). Any response by the NCAA or Class Counsel is due on or before September 14, 2015. Id. Mr. Nichols’ reply memorandum is due on or before September 28, 2015. Id.

8. On July 31, 2015, counsel for the NCAA wrote to Mr. Nichols' attorney, requesting information about Mr. Nichols and his claim so that the NCAA could fully respond to Mr. Nichols' July 15, 2015 submission. See July 31, 2015 Corresp. fr. M. Mester to A. Scharg, Ex. 33. Specifically, the NCAA requested in its July 31, 2015 correspondence the following documents and information:

- "Mr. Nichols' medical files . . ., including but not limited to any 'documented diagnosis' Mr. Nichols has received";
- any athletic training records Mr. Nichols could obtain from his university that pertained to his treatment;
- a list of "each head injury, concussion or possible concussion Mr. Nichols sustained at any time in his life";
- "a delineation of Mr. Nichols' claimed damages, broken down by category, with an indication of the amount Mr. Nichols is claiming for each category of damages"; and
- confirmation that the intended source of "documented concussions" referenced in the July 15, 2015 submission's class definition is the NCAA's Injury Surveillance System.

Id.

9. On July 31, 2015, Mr. Nichols' counsel, Ari Scharg, responded to the NCAA's letter. See July 31, 2015 Email fr. A. Scharg to M. Mester, Ex. 42. Mr. Scharg questioned the relevance of the requested information because (i) the July 15, 2015 submission was not a motion for class certification and (ii) Mr. Nichols' counsel had not identified in any pleadings what class representative they would propose to lead the proposed personal injury class. Id. Mr. Scharg also stated that the NCAA had not previously indicated to the Court that it required additional discovery in order to respond to Mr. Nichols' objections. Id. Mr. Scharg asserted, however, that the certifiability of a personal injury class under Fed. R. Civ. P. 23(b)(3) did not

depend on facts specific to Mr. Nichols or anyone else and expressed his belief that the NCAA's request was intended to delay the briefing schedule. Id.

10. On August 3, 2015, the NCAA's counsel responded to Mr. Scharg's July 31, 2015 email. See Aug. 3, 2015 Email fr. M. Mester to A. Scharg, Ex. 43. Mr. Mester explained that counsel for the NCAA had previously told the Court that the NCAA could not know for certain whether additional discovery would be necessary until Mr. Nichols had submitted his filing. Id. Mr. Mester further explained that in Wal-Mart Stores, Inc. v. Dukes, 131 S. Ct. 2541 (2011), the U.S. Supreme Court made clear that whether a class can be certified depends on the facts underlying the individual and class claims. Id. Thus, the limited information that the NCAA sought about Mr. Nichols bore directly on the certifiability of the personal injury class Mr. Nichols first proposed in his July 15, 2015 submission. Id. Mr. Mester also asked that if Mr. Nichols was not the representative for the class he proposed in the July 15, 2015 submission, his counsel identify the proposed representative and provide the requested information about that person as promptly as possible, since the NCAA was operating on the assumption in preparing its response to Mr. Nichols' July 15, 2015 submission that Mr. Nichols would himself be the proposed representative of the new class, inasmuch as Mr. Nichols' counsel have not entered an appearance in this litigation for anyone other than Mr. Nichols. Id. Finally, Mr. Mester stated that there would be no need to delay the briefing schedule, assuming the prompt production of the requested materials. Id.

11. On August 4, 2015, Mr. Nichols' attorney, Jay Edelson, suggested that Mr. Nichols might convert his July 15, 2015 submission to a motion for class certification. See Aug. 4, 2015 Email fr. J. Edelson to S. Berman, Ex. 44. Mr. Edelson stated that the NCAA could then depose the proposed class representative and take written discovery of that person. Id. Mr.

Edelson also stated that he would likely seek discovery relating to the NCAA's statements regarding the probable value of the individual cases pending against the NCAA and why the NCAA believes that individual claims would be pursued outside of a class action. Id.

12. On August 5, 2015, Mr. Mester responded to Mr. Edelson, indicating that the NCAA did not believe it was necessary to convert the July 15, 2015 submission into a motion for class certification, nor would doing so make sense, inasmuch as it was the NCAA's understanding that the purpose of the current briefing was to assist the Court in its fairness analysis of the Settlement Agreement. See Aug. 5, 2015 Email fr. M. Mester to J. Edelson, Ex. 45.

13. On August 5, 2015, I spoke with Mr. Nichols' attorney, Jay Edelson, regarding the NCAA's July 31, 2015 request for information. During that telephone call, Mr. Edelson said that the NCAA's Injury Surveillance System was not the source of "documented concussions" referenced in the July 15, 2015 submission. When I asked him to identify the actual source, however, Mr. Edelson said he was not obligated to do so. Mr. Edelson asked if the NCAA planned to request to take Mr. Nichols' deposition, and if it would oppose Mr. Edelson's efforts to take discovery, such as discovery of the Arrington class representatives. He also asked if the NCAA would agree to delay the briefing schedule if doing so was necessary to provide Mr. Nichols' counsel sufficient time to produce the requested information. I said I would confer with my colleagues and client and respond to those questions as soon as possible.

14. On August 11, 2015, Mr. Edelson emailed to ask when the NCAA would respond to his questions. See Aug. 11, 2015 Email fr. J. Edelson to J. Spellman, Ex. 46. On August 12, 2015, Mr. Mester responded that assuming Mr. Edelson provided the information previously requested, the NCAA did not plan to seek to depose Mr. Nichols in connection with its response

to the July 15, 2015 submission. See Aug. 12, 2015 Email fr. M. Mester to J. Edelson, Ex. 47. In addition and in the spirit of cooperation, Mr. Mester indicated that the NCAA was willing to consider any specific discovery request from Mr. Edelson provided that it did not unduly prolong the existing schedule. Id. Mr. Mester further stated that the NCAA was amenable to a modest extension of the existing briefing schedule to allow Mr. Edelson to provide the requested information or facilitate targeted discovery. Id. Finally, Mr. Mester asked Mr. Edelson to identify the intended source for the “documented concussions” referenced in Mr. Nichols’ newly-proposed class, as reflected in his July 15, 2015 submission. Id.

15. On August 12, 2015, Mr. Edelson asked if the NCAA would object to his deposing the current Settlement Class Representatives. See Aug. 12, 2015 Email fr. J. Edelson to M. Mester, Ex. 48. He also asked if the NCAA felt it needed the information it had requested on July 31, 2015, given that Mr. Nichols’ counsel would require time to comply, thus potentially delaying the briefing schedule. Id. He stated that subject to the NCAA’s agreement not to object to depositions of the Settlement Class Representatives, he would not oppose a motion by the NCAA to extend the briefing schedule. Id. He reserved the right, however, to seek leave to file a supplemental brief addressing the adequacy of the class representative and to convert Mr. Nichols’ objections into a motion for class certification. Id.

16. On August 12, 2015, Mr. Mester responded that the NCAA would not object to Mr. Edelson deposing the current Settlement Class Representatives if Mr. Edelson would not object to the NCAA deposing Mr. Nichols. See Aug. 12, 2015 Email fr. M. Mester to J. Edelson, Ex. 49. Mr. Mester stated that if additional depositions were to be taken, it would seem logical to defer the submission of the NCAA’s brief and Mr. Nichols’ reply until those depositions had occurred. Id. Mr. Mester also stated that any motion to amend the schedule should be a joint

motion. Id. He further stated that the NCAA does not believe that the Court intended for Mr. Nichols' submission to be a motion for class certification, nor did converting the submission into a class certification motion make sense. Id. He then reiterated his prior request that Mr. Edelson identify the source for "documented concussions" in Mr. Nichols' July 15, 2015 class definition. Id.

17. On August 12, 2015, Mr. Edelson stated that he had not decided who would be put forward as the putative representative of the class proposed in Mr. Nichols' July 15, 2015 Submission. See Aug. 12, 2015 Email fr. J. Edelson to M. Mester, Ex. 50. He also stated that the Injury Surveillance System database is not part of the July 15, 2015 submission's class definition and that the class definition speaks for itself. Id.

18. On August 13, 2015, Mr. Mester responded that Mr. Nichols is the only person on whose behalf Mr. Edelson has appeared and that the July 15, 2015 submission was made on Mr. Nichols' behalf. See Aug. 13, 2015 Email fr. M. Mester to J. Edelson, Ex. 51. He stated that Mr. Nichols is the person proposing a new personal injury class and that the NCAA is preparing its response to the July 15, 2015 submission on the assumption that Mr. Nichols is the person making the objections contained therein. Id. He asked if that is not the case, Mr. Edelson let us know as soon as possible. Id. He said he understood that the Injury Surveillance System is not part of the class definition and asked whether Mr. Edelson intends for it to be the source of "documented concussions" for purposes of the class definition. Id. If not, he asked Mr. Edelson to identify the intended source. Id.

19. On August 13, 2015, Mr. Edelson stated that Mr. Nichols had filed an objection to preliminary approval and as such, was not required to propose a class representative, nor is Mr. Nichols' appropriateness as a class representative relevant. See Aug. 13, 2015 Email fr. J.

Edelson to M. Mester, Ex. 52. He said he would think about who he would theoretically propose as a class representative. Id. He stated he had explained his position on the Injury Surveillance System during the August 5, 2015 telephone call with me but again did not identify what the source of “documented concussions” (if any) would be. Id.

20. On August 14, 2015, Mr. Mester again asked that if Mr. Nichols is not the class representative, Mr. Edelson let us know as soon as possible. See Aug. 14, 2015 Email fr. M. Mester to J. Edelson, Ex. 53. He said that if Mr. Nichols is not to be the class representative, the NCAA reserved all rights with respect to Mr. Nichols’ standing to make the objections he has made to date. Id. He noted that Mr. Edelson had avoided identifying the source of “documented concussions,” as the term is used in the July 15, 2015 submission. Id. He stated he was unaware of any other source that would contain a compilation of “documented concussions” and again asked Mr. Edelson to identify the source he intended to rely upon. Id.

21. On August 14, 2015, Mr. Edelson responded, requesting that Mr. Mester identify case law to support the position that Mr. Nichols lacks standing to make certain arguments if he is not the putative personal injury class representative. See Aug. 14, 2015 Email fr. J. Edelson to M. Mester, Ex. 54.

22. On August 15, 2015, Mr. Mester responded stating that if Mr. Nichols does not share the interest he is advocating in his objections, he does not have standing to make that argument in support of his objection. See Aug. 15, 2015 Email fr. M. Mester to J. Edelson, Ex. 55. Mr. Mester reiterated his prior request that Mr. Edelson identify the source of “documented concussions” on which he intends to rely. Id.

23. On August 15, 2015, Mr. Edelson confirmed that he would not identify the source of “documented concussions” on which he intends to rely because there is “no mechanism where

a litigant gets to ask questions about the brief of opposing party.” See Aug. 15, 2015 Email fr. J. Edelson to M. Mester, Ex. 56. Mr. Edelson noted that “the definition of ‘documented’ is meant by its plain meaning.” Id.

24. I am familiar with the documents that have been produced in the Arrington case and the Injury Surveillance System, and to my knowledge, the record does not contain information that would facilitate the creation of a comprehensive list of persons with a “documented concussion” or a list of persons with a “documented diagnosis” of post-concussion syndrome, chronic traumatic encephalopathy, Alzheimer’s disease, Parkinson’s disease, or Amyotrophic Lateral Sclerosis.

EXHIBITS

25. Non-confidential documents are publicly filed as Exhibits 1-34, 37, and 39-56 hereto.

26. Exhibits 35, 36 and 38 contain information that has been designated Confidential Protected Health Information pursuant to the Arrington Stipulated Qualified HIPAA Protective Order (Arrington Dkt. #56). Unredacted copies of Exhibits 35, 36 and 38 are filed under seal.

27. Exhibit 1 attached hereto is a true and correct copy of certain excerpts from the NCAA Constitution excerpted from the 2015-16 NCAA Division I Manual.

28. Exhibit 2 attached hereto is a true and correct copy of certain excerpts from the April 3, 2013 deposition of Dennis Poppe.

29. Exhibit 3 attached hereto is a true and correct copy of “NCAA changes to minimize risk of injury,” produced as NCAA00007876 in Arrington.

30. Exhibit 4 attached hereto is a true and correct copy of NCAA Football Rules Committee, Historical Review of Rules Intended to Prevent/Reduce Head Injury, produced as NCAA10145748-50 in Arrington.

31. Exhibit 5 attached hereto is a true and correct copy of certain excerpts from the NCAA 2007 Football Rules and Interpretations, produced as NCAA00006202 in Arrington.

32. Exhibit 6 attached hereto is a true and correct copy of certain excerpts from the NCAA 2008 Football Rules and Interpretations, produced as NCAA00006331 in Arrington.

33. Exhibit 7 attached hereto is a true and correct copy of NCAA00014899-907 produced in Arrington.

34. Exhibit 8 attached hereto is a true and correct copy of McCrea, et al., Acute Effects and Recovery Time Following Concussion, J. Am. Sports Med., at 2556 (Nov. 19, 2003), produced as NCAA00007837-44 in Arrington.

35. Exhibit 9 attached hereto is a true and correct copy of McCrea, et al., Cumulative Effects Associated with Recurrent Concussion in Collegiate Football Players, J. Am. Sports Med., at 2549 (Nov. 19, 2003), produced as NCAA00007909-15 in Arrington.

36. Exhibit 10 attached hereto is a true and correct copy of Brian Burnsed, NCAA Funds Study Examining the Long-Term Effects of Concussions in Sports, NCAA News (July 19, 2013).

37. Exhibit 11 attached hereto is a true and correct copy of Injury Surveillance System Results Available for Fall 2004, NCAA News (Feb. 10, 2005), produced as NCAA10149420-21 in Arrington.

38. Exhibit 12 attached hereto is a true and correct copy of NCAA Panel to Review Concussion Issues, NCAA News Archive 2009, produced as NCAA00007874-75 in Arrington.

39. Exhibit 13 attached hereto is a true and correct copy of Spring-Sports Injury Research Demonstrates Reduced Rates, NCAA News (Aug. 30, 2004), produced as NCAA00003115-18 in Arrington.

40. Exhibit 14 attached hereto is a true and correct copy of certain excerpts from the April 16, 2013 deposition of David Klossner.

41. Exhibit 15 attached hereto is a true and correct copy of Ty Halpin, Committee Recommends Several Football Rules Proposals to Enhance Safety, NCAA News (Feb. 2012).

42. Exhibit 16 attached hereto is a true and correct copy of Ty Halpin, Football Rules Committee Recommends Ejection for Targeting Defenseless Players, NCAA News (Feb. 2013).

43. Exhibit 17 attached hereto is a true and correct copy of certain excerpts from the May 9, 2013 deposition of Kevin Guskiewicz.

44. Exhibit 18 attached hereto is a true and correct copy of certain excerpts from the NCAA 1933 Medical Handbook for Schools and Coaches, produced as NCAA10140157-61 in Arrington.

45. Exhibit 19 attached hereto is a true and correct copy of certain excerpts from the NCAA 1994-95 Sports Medicine Handbook, produced as NCAA10139563 in Arrington.

46. Exhibit 20 attached hereto is a true and correct copy of certain excerpts from the NCAA 1997-98 Sports Medicine Handbook, produced as NCAA10140071 in Arrington.

47. Exhibit 21 attached hereto is a true and correct copy of certain excerpts from the NCAA 2004-05 Sports Medicine Handbook, produced as NCAA00017243 in Arrington.

48. Exhibit 22 attached hereto is a true and correct copy of certain excerpts from the NCAA 2009-10 Sports Medicine Handbook, produced as NCAA0007461 in Arrington.

49. Exhibit 23 attached hereto is a true and correct copy of certain excerpts from the November 8, 2012 deposition of David Klossner.

50. Exhibit 24 attached hereto is a true and correct copy of certain excerpts from the NCAA 2013-14 Sports Medicine Handbook.

51. Exhibit 25 attached hereto is a true and correct copy of a Memorandum from Debra Runkle to NCAA Head Athletic Trainers (Apr. 29, 2010), produced as NCAA00007832 in Arrington.

52. Exhibit 26 attached hereto is a true and correct copy of a Memorandum from Kathleen Brasfield to NCAA Division II Directors of Athletics (Aug. 13, 2010), produced as NCAA00007903 in Arrington.

53. Exhibit 27 attached hereto is a true and correct copy of Concussion (Mild Traumatic Brain Injury) and the Team Physician: A Consensus Statement, Official J. of the Am. Coll. of Sports Med., at 395 (2006).

54. Exhibit 28 attached hereto is a true and correct copy of M. Aubry, et al., Summary and Agreement Statement of the First International Conference on Concussion in Sports, Vienna 2001, British J. of Sports Med., at 6 (2002).

55. Exhibit 29 attached hereto is a true and correct copy of Robert C. Cantu, M.D., An Overview of Concussion Consensus Statements Since 2000, Neurosurgical Focus, at 1 (Oct. 2006).

56. Exhibit 30 attached hereto is a true and correct copy of certain excerpts from the NCAA 2001-02 Sports Medicine Handbook, produced as NCAA00006798 in Arrington.

57. Exhibit 31 attached hereto is a true and correct copy of P. McCrory, et al., Summary and Agreement Statement of the 2nd International Conference on Concussion in Sport, Prague 2004, British J. of Sports Med., at 196 (2005).

58. Exhibit 32 attached hereto is a true and correct copy of certain excerpts from the NCAA 2004-05 Sports Medicine Handbook, produced as NCAA00007098 in Arrington.

59. Exhibit 33 attached hereto is a true and correct copy of a correspondence from Mark Mester to Ari Scharg (July 31, 2015).

60. Exhibit 34 attached hereto is a true and correct copy of Table T-6; U.S. District Courts – Trials and Trial Days for Each Place of Holding Court, by District, During the 12-Month Period ending June 30, 2015, prepared by Administrative Office of U.S. Courts.

61. Exhibit 35 is a true and correct copy of “Questions and Concerns for the Doctor?” (Aug. 13, 2009), produced as ARRINGTON-BREMER0000040 in Arrington (filed under seal).

62. Exhibit 36 attached hereto is a true and correct copy of certain excerpts from the March 13, 2013 deposition of Adrian Arrington, including Arrington deposition Exhibit 15, produced as ARRINGTON-EIU00000714 (unredacted copy filed under seal).

63. Exhibit 37 attached hereto is a true and correct copy of certain excerpts from the April 23, 2013 deposition of Derek Owens (unredacted copy filed under seal).

64. Exhibit 38 attached hereto is a true and correct copy of certain excerpts from the April 9, 2013 deposition of Angela Palacios, including Palacios deposition Exhibit 15, produced as PALACIOS_OUACHITA200000942 (unredacted copy filed under seal).

65. Exhibit 39 attached hereto is a true and correct copy of certain excerpts from the April 16, 2013 deposition of Kyle Solomon.

66. Exhibit 40 attached hereto is a true and correct copy of an email from Adrian Arrington to Barbara Burke (Aug. 12, 2009), produced as ARRINGTON00000002 in Arrington.

67. Exhibit 41 attached hereto is a true and correct copy of certain excerpts from the NCAA 2012-13 Football Rules and Interpretations.

68. Exhibit 42 attached hereto is a true and correct copy of an email from Ari Scharg to Mark Mester (July 31, 2015).

69. Exhibit 43 attached hereto is a true and correct copy of an email from Mark Mester to Ari Scharg (Aug. 3, 2015).

70. Exhibit 44 attached hereto is a true and correct copy of an email from Jay Edelson to Steve Berman (Aug. 4, 2015).

71. Exhibit 45 attached hereto is a true and correct copy of an email from Mark Mester to Jay Edelson (Aug. 5, 2015).

72. Exhibit 46 attached hereto is a true and correct copy of an email from Jay Edelson to Johnna Spellman (Aug. 11, 2015).

73. Exhibit 47 attached hereto is a true and correct copy of an email from Mark Mester to Jay Edelson (Aug. 12, 2015).

74. Exhibit 48 attached hereto is a true and correct copy of an email from Jay Edelson to Mark Mester (Aug. 12, 2015).

75. Exhibit 49 attached hereto is a true and correct copy of an email from Mark Mester to Jay Edelson (Aug. 12, 2015).

76. Exhibit 50 attached hereto is a true and correct copy of an email from Jay Edelson to Mark Mester (Aug. 12, 2015).

77. Exhibit 51 attached hereto is a true and correct copy of an email from Mark Mester to Jay Edelson (Aug. 13, 2015).

78. Exhibit 52 attached hereto is a true and correct copy of an email from Jay Edelson to Mark Mester (Aug. 13, 2015).

79. Exhibit 53 attached hereto is a true and correct copy of an email from Mark Mester to Jay Edelson (Aug. 14, 2015).

80. Exhibit 54 attached hereto is a true and correct copy of an email from Jay Edelson to Mark Mester (Aug. 14, 2015).

81. Exhibit 55 attached hereto is a true and correct copy of an email from Mark Mester to Jay Edelson (Aug. 15, 2015).

82. Exhibit 56 attached hereto is a true and correct copy of an email from Jay Edelson to Mark Mester (Aug. 15, 2015).

I declare under penalty of perjury under the laws of the state of Illinois that the foregoing is true and correct.

EXECUTED on this 14th day of September, 2015, at Chicago, Illinois.



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EXHIBIT 1



2015-16 NCAA®

DIVISION I **MANUAL**

EFFECTIVE
AUGUST 1, 2015



THE NATIONAL COLLEGIATE ATHLETIC ASSOCIATION

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CONSTITUTION, ARTICLE 2

Principles for Conduct of Intercollegiate Athletics

2.01 General Principle. [*]

Legislation enacted by the Association governing the conduct of intercollegiate athletics shall be designed to advance one or more basic principles, including the following, to which the members are committed. In some instances, a delicate balance of these principles is necessary to help achieve the objectives of the Association.

2.1 The Principle of Institutional Control and Responsibility. [*]

2.1.1 Responsibility for Control. [*] It is the responsibility of each member institution to control its intercollegiate athletics program in compliance with the rules and regulations of the Association. The institution's president or chancellor is responsible for the administration of all aspects of the athletics program, including approval of the budget and audit of all expenditures. *(Revised: 3/8/06)*

2.1.2 Scope of Responsibility. [*] The institution's responsibility for the conduct of its intercollegiate athletics program includes responsibility for the actions of its staff members and for the actions of any other individual or organization engaged in activities promoting the athletics interests of the institution.

2.2 The Principle of Student-Athlete Well-Being. [*]

Intercollegiate athletics programs shall be conducted in a manner designed to protect and enhance the physical and educational well-being of student-athletes. *(Revised: 11/21/05)*

2.2.1 Overall Educational Experience. [*] It is the responsibility of each member institution to establish and maintain an environment in which a student-athlete's activities are conducted as an integral part of the student-athlete's educational experience. *(Adopted: 1/10/95)*

2.2.2 Cultural Diversity and Gender Equity. [*] It is the responsibility of each member institution to establish and maintain an environment that values cultural diversity and gender equity among its student-athletes and intercollegiate athletics department staff. *(Adopted: 1/10/95)*

2.2.3 Health and Safety. [*] It is the responsibility of each member institution to protect the health of, and provide a safe environment for, each of its participating student-athletes. *(Adopted: 1/10/95)*

2.2.4 Student-Athlete/Coach Relationship. [*] It is the responsibility of each member institution to establish and maintain an environment that fosters a positive relationship between the student-athlete and coach. *(Adopted: 1/10/95)*

2.2.5 Fairness, Openness and Honesty. [*] It is the responsibility of each member institution to ensure that coaches and administrators exhibit fairness, openness and honesty in their relationships with student-athletes. *(Adopted: 1/10/95)*

2.2.6 Student-Athlete Involvement. [*] It is the responsibility of each member institution to involve student-athletes in matters that affect their lives. *(Adopted: 1/10/95)*

2.3 The Principle of Gender Equity. [*]

2.3.1 Compliance With Federal and State Legislation. [*] It is the responsibility of each member institution to comply with federal and state laws regarding gender equity. *(Adopted: 1/11/94)*

2.3.2 NCAA Legislation. [*] The Association should not adopt legislation that would prevent member institutions from complying with applicable gender-equity laws, and should adopt legislation to enhance member institutions' compliance with applicable gender-equity laws. *(Adopted: 1/11/94)*

2.3.3 Gender Bias. [*] The activities of the Association should be conducted in a manner free of gender bias. *(Adopted: 1/11/94)*

2.4 The Principle of Sportsmanship and Ethical Conduct. [*]

For intercollegiate athletics to promote the character development of participants, to enhance the integrity of higher education and to promote civility in society, student-athletes, coaches, and all others associated with these athletics programs and events should adhere to such fundamental values as respect, fairness, civility, honesty and responsibility. These values should be manifest not only in athletics participation, but also in the broad spectrum of activities affecting the athletics program. It is the responsibility of each institution to: *(Adopted: 1/9/96)*

3.1.2 Athletics Consortiums. The Council, by a two-thirds majority of its members present and voting, may approve an athletics consortium involving a member institution and neighboring member or nonmember institutions (but not more than one nonmember institution) to permit the student-athletes of the combined institutions to compete on the member institution's intercollegiate athletics teams, provided the student-athletes satisfy the eligibility requirements of the member institution and the NCAA. *(Revised: 11/1/07 effective 8/1/08, 7/30/10, 8/7/14)*

3.1.2.1 General Policy. In general, a consortium shall be approved on the basis of existing academic considerations with the understanding that there shall be no change in the basic recruitment, enrollment or financial aid policies of the involved institutions as a result of such approval. *(Revised: 7/30/10)*

3.1.2.2 Combining Entire Athletics Programs. The institutions shall combine their entire athletics programs, and the consortium shall not be formed on a sport-by-sport basis. *(Revised: 7/30/10)*

3.1.2.3 Conference Approval. An institution that belongs to an NCAA member conference first shall receive approval of its conference prior to instituting a consortium for its intercollegiate athletics program. If more than one institution holds such conference membership, all such conferences shall approve the consortium. *(Revised: 7/30/10)*

3.1.2.4 Eligibility Requirements for Student-Athletes. Participating student-athletes shall meet all eligibility requirements of the member institution(s), the athletics conference(s) involved and the NCAA. The member institution(s) shall certify the eligibility of all student-athletes under those rules. *(Revised: 7/30/10)*

3.1.2.5 Financial Assistance to Student-Athletes. Within a consortium: *(Revised: 7/30/10)*

- (a) Each institution shall be responsible for the financial assistance awarded to its student-athletes. The financial arrangement between or among the institutions for the exchange of funds to cover the academic costs of student-athletes who take part in the exchange program shall apply to student-athletes in the same manner as it applies to those students not participating in the intercollegiate athletics program;
- (b) One institution may not provide a scholarship or any other form of financial aid to a student-athlete enrolled in another institution or transmit a scholarship or grant-in-aid to another institution to be used by one or more of its student-athletes; and
- (c) Financial aid limitations as set forth in Bylaw 15 shall be applicable to the consortium as one entity and shall include all countable student-athletes, regardless of the institution in which they are enrolled.

3.1.2.6 Length of Approval. NCAA approval shall be for a four-academic-year period, at the end of which the institutions shall submit a report on the program, setting forth its effect upon their academic and athletics operations. *(Revised: 8/4/89, 7/30/10)*

3.1.2.7 NCAA Division Membership. The institutions may be members of different NCAA divisions but shall select one division for legislative and competitive purposes. *(Revised: 7/30/10)*

3.1.2.8 NCAA Member Involvement. At least one of the institutions already shall be a member of the NCAA, and not more than one nonmember institution shall be included. *(Revised: 7/30/10)*

3.1.2.9 NCAA Membership Application. The institutions shall apply for NCAA membership as a consortium and shall be considered as one member of the Association, with their combined names included on the official NCAA membership list. *(Revised: 7/30/10)*

3.1.2.10 Prior Academic Consortium Relationship. The institutions shall have had a prior academic consortium relationship. *(Revised: 7/30/10)*

3.1.2.11 Recruitment. It is permissible for one institution to recruit prospective student-athletes with a view to their possible enrollment at another institution in the consortium, provided the individuals qualify for admission to that institution and the athletics interests of the member institution are not involved, directly or indirectly, in influencing the admission or award of financial assistance. *(Revised: 7/30/10)*

3.2 Active Membership.

3.2.1 Eligibility Requirements.

3.2.1.1 Types of Institutions. Active membership is available to four-year colleges and universities, accredited by the appropriate regional accrediting agency and pursuant to Board of Governors policy, and duly elected to active membership under the provisions of Constitution 3.2.3. *(Revised: 1/15/11 effective 8/1/11, 7/23/12, 10/30/14)*

3.2.1.2 Compliance With Association Rules. The institution shall administer its athletics programs in accordance with the constitution, bylaws and other legislation of the Association.

3.2.1.3 Standards. The institution's athletics programs shall reflect the establishment and maintenance of high standards of personal honor, eligibility and fair play.

3.2.2 Privileges.

3.2.2.1 Active Members. Active members shall be entitled to all of the privileges of membership under the constitution and bylaws of the Association and all privileges incidental thereto. A copy of NCAA Champion magazine shall be sent to each member of the NCAA.

3.2.2.2 Use of Association's Registered Marks. Active members may use the registered marks of the Association (the Association's name, logo or other insignia) only in accordance with guidelines established by the Board of Governors. *(Revised: 10/30/14)*

3.2.3 Election Procedures.

3.2.3.1 Completion of Reclassification Process. An institution desiring to become an active member of Division I shall complete a reclassification period (see Bylaw 20.5). After the Council has determined that the institution has met the requirements of reclassification, its request for active membership will be referred to the Board of Directors for election. *(Revised: 1/11/94 effective 9/2/94, 5/8/06, 11/1/07 effective 8/1/08, 10/28/10, 1/15/11 effective 8/1/11, 8/7/14)*

3.2.3.2 Accreditation. After the Council has determined that the institution is accredited by one of the six regional accrediting agencies, the application shall be referred to the Board of Directors for consideration. *(Revised: 11/1/07 effective 8/1/08, 10/28/10, 1/15/11 effective 8/1/11, 8/7/14)*

3.2.3.3 Election. A favorable vote by two-thirds of the Board of Directors members present and voting shall elect the applicant to membership effective the following August 1. When the vote of the Board of Directors has been completed, the applicant shall be notified. *(Revised: 11/1/07 effective 8/1/08, 10/28/10, 1/15/11 effective 8/1/11)*

3.2.3.4 Resignation and Re-election to Membership. If an institution resigns its Division I membership and subsequently applies to re-establish its Division I membership, the institution shall complete the reclassification process (see Bylaw 20.5) before becoming eligible for re-election as an active member. *(Revised: 1/11/94 effective 9/2/94, 1/26/07, 1/15/11 effective 8/1/11)*

3.2.4 Conditions and Obligations of Membership.

3.2.4.1 General. The active members of this Association agree to administer their athletics programs in accordance with the constitution, bylaws and other legislation of the Association.

3.2.4.2 Obligation to Meet Division Criteria. Division membership criteria constitute enforceable legislation. Each member institution shall comply with all applicable criteria of its division, and an institution that fails to do so shall be subject to the infractions process and to possible reclassification. *(Revised: 7/31/14)*

3.2.4.3 Certification of Eligibility/Declaration of Ineligibility. An active member is responsible for certifying the eligibility of student-athletes under the terms of the constitution, bylaws or other legislation of the Association before permitting a student-athlete to represent the institution in intercollegiate competition. Procedures for eligibility certification shall be approved by the president or chancellor, who may designate an individual on the institution's staff to administer proper certification of eligibility. The institution shall be obligated immediately to apply all applicable rules and withhold ineligible student-athletes from all intercollegiate competition (see Bylaw 12.11). See Bylaw 12.12 for procedures regarding restoration of eligibility. *(Revised: 3/8/06)*

3.2.4.4 Academic Performance Program. Each active member is responsible for annually submitting documentation demonstrating its compliance with the academic performance program, including the submission of data for the academic progress rate (APR), the academic performance census (APC) and the graduation success rate (GSR). The specific requirements of the academic performance program are set forth in Bylaw 14.8. *(Adopted: 4/29/04)*

3.2.4.5 Application of Rules to All Recognized Varsity Sports. The constitution, bylaws and other legislation of this Association, unless otherwise specified therein, shall apply to all teams in sports recognized by the member institution as varsity intercollegiate sports and that involve all-male teams, mixed teams of males and females, and all-female teams. To be recognized as a varsity sport, the following conditions must be met: *(Revised: 1/11/89, 1/11/94, 1/10/95, 3/8/06, 1/15/11 effective 8/1/11)*

- (a) The sport shall be one in which the Association conducts championships, except as provided in Bylaw 20.9.6.1.1 or an emerging sport for women per Bylaw 20.02.4;
- (b) The sport officially shall have been accorded varsity status by the institution's president or chancellor or committee responsible for intercollegiate athletics;
- (c) The sport is administered by the department of intercollegiate athletics;
- (d) The eligibility of student-athletes participating in the sport shall be reviewed and certified by a staff member designated by the institution's president or chancellor or committee responsible for intercollegiate athletics policy; and
- (e) Qualified participants in the sport shall receive the institution's official varsity awards.

3.2.4.5.1 Intent to Sponsor a Varsity Sport. Once an institution evidences an intent or commitment to sponsor a sport on a varsity level (e.g., official announcement that competition will be conducted on a varsity basis, employment of individuals to coach the varsity team), the institution must begin applying NCAA recruiting regulations to the applicable sport. *(Adopted: 1/14/97)*

3.2.4.6 Student-Athlete Statement. An active member shall administer annually, on a form prescribed by the Council, a signed statement for each student-athlete that provides information prescribed in Bylaw 12.7.2. *(Revised: 4/24/03, 11/1/07 effective 8/1/08, 7/31/14, 8/7/14)*

3.2.4.7 Drug-Testing Program and Consent Form. An active member shall administer annually, a drug-testing consent form for each student-athlete (per Bylaw 12.02.13) pursuant to Bylaw 12.7.3 and shall ensure compliance with the following elements of the NCAA Drug-Testing Program: **[D]** (*Adopted: 1/10/92 effective 8/1/92, Revised: 4/24/03, 11/1/07 effective 8/1/08, 7/30/10, 1/15/11 effective 8/1/11, 5/29/15*)

- (a) Respond to the initial drug-testing notification from The National Center for Drug Free Sport by the date specified by the organization;
- (b) Complete and forward to The National Center for Drug Free Sport a current and accurate institutional squad list (see Bylaw 15.5.11) by the date specified by the organization;
- (c) Provide adequate and secure drug-testing facilities as specified by The National Center for Drug Free Sport;
- (d) Notify student-athletes who have been selected for drug testing according to the timeline specified by The National Center for Drug Free Sport;
- (e) Respond to additional requests for assistance in administering the NCAA drug-testing program as specified by The National Center for Drug Free Sport;
- (f) Designate an individual (or individuals) as the athletics department resource for questions related to NCAA banned drugs and the use of nutritional supplements; and
- (g) Educate athletics department staff members who have regular interaction with student-athletes that:
 - (1) The NCAA maintains a list of banned drug classes and provides examples of banned substances in each drug class on the NCAA website;
 - (2) Any nutritional supplement use may present risks to a student-athlete's health and eligibility; and
 - (3) Questions regarding NCAA banned drugs and the use of nutritional supplements should be referred to the institution's designated athletics department resource individual (or individuals).

3.2.4.8 Certification of Insurance Coverage. An active member institution must certify insurance coverage for medical expenses resulting from athletically related injuries sustained by the following individuals while participating in a covered event: **[D]** (*Adopted: 4/28/05 effective 8/1/05*)

- (a) A student-athlete participating in a covered event in an intercollegiate sport as recognized by the participating institution; and
- (b) A prospective student-athlete participating in a covered event who has graduated from high school and signed a National Letter of Intent or an institution's written offer of admission and/or financial aid to participate in an intercollegiate sport at a participating institution.

3.2.4.8.1 Amount of Coverage Insurance. Such insurance coverage must be of equal or greater value than the deductible of the NCAA catastrophic injury insurance program and may be provided through the following sources: **[D]** (*Adopted: 4/28/05 effective 8/1/05*)

- (a) Parents' or guardians' insurance coverage;
- (b) Participant's personal insurance coverage; or
- (c) Institution's insurance program.

3.2.4.8.2 Athletically Related Injuries. For purposes of this bylaw, athletically related injuries are injuries that are a direct result of participation in a covered event. (*Adopted: 4/28/05 effective 8/1/05*)

3.2.4.8.3 Covered Event. A covered event includes the following: (*Adopted: 4/28/05 effective 8/1/05*)

- (a) Any intercollegiate sports activity, including team travel, competition, practices and conditioning sessions during the playing season (as defined in Bylaw 17.1.1);
- (b) An NCAA-sanctioned competition in which the insured person is an official competitor; or
- (c) Practice and conditioning sessions that are authorized, organized or directly supervised by athletics department personnel at the member institution other than during the playing season. Such sessions must occur on campus or at approved off-campus facilities as part of an intercollegiate athletics activity. For insured student-athletes or prospective student-athletes who compete in individual sports, off-campus intercollegiate athletics activities must be authorized by athletics department personnel at the participating school and take place at approved locations.

3.2.4.9 Student-Athlete Health Insurance Portability and Accountability Act (HIPAA) Authorization/Buckley Amendment Consent Form—Disclosure of Protected Health Information. The active member institution shall administer annually a statement for each student-athlete to voluntarily sign that provides information prescribed in Bylaw 12.7.4. (*Adopted: 4/24/03 effective 8/1/03, Revised: 8/7/03 effective 8/1/04, 11/1/07 effective 8/1/08*)

3.2.4.10 Discipline of Members. Pursuant to directions of the Board of Directors or the annual Convention, active members shall refrain from athletics competition with designated institutions as required under the provisions of the Association's infractions process (see Bylaw 19). (*Revised: 11/1/07 effective 8/1/08, 7/31/14*)

3.2.4.11 Standards. Active members agree to establish and maintain high standards of personal honor, eligibility and fair play.

3.2.4.12 Publication of Progress-Toward-Degree Requirements. Active members are obligated to publish their progress-toward-degree requirements for student-athletes (see Bylaw 14.4.1).

3.2.4.13 Missed Class-Time Policies. Active members are obligated to establish policies in all sports concerning student-athletes' missed class time due to participation in intercollegiate athletics and in athletics competition scheduled during final examination periods. In men's basketball, an institution's athletics participation schedule, which shall include the anticipated amount of missed class time due to athletics participation, shall be approved by the institution's faculty athletics representative or faculty oversight committee prior to the beginning of each regular academic term. (*Adopted: 4/29/10 effective 8/1/10*)

3.2.4.14 Compliance-Related Forms. A member institution shall not be eligible to enter a team or individual competitors in an NCAA championship unless its president or chancellor makes an annual institutional eligibility certification [see Bylaw 18.4.2.1-(d)] attesting that the conditions specified have been satisfied. (*Adopted: 1/10/95, Revised: 3/8/06*)

3.2.4.15 Operating and Capital Financial Data Report. An institution shall submit financial data detailing operating revenues, expenses and capital related to its intercollegiate athletics program to the NCAA on an annual basis in accordance with the financial reporting policies and procedures. The required data shall include, but is not limited to, the following: (*Adopted: 1/17/09 effective 8/1/09*)

- (a) All expenses and revenues for or on behalf of an institution's intercollegiate athletics program, including those by any affiliated or outside organization, agency or group of individuals;
- (b) Salary and benefits data for all athletics positions. The data shall include base salary, bonuses, endorsements, media fees, camp or clinic income, deferred income and other income contractually guaranteed by the institution;
- (c) Capital expenditures (to be reported in aggregate for athletics facilities), including capitalized additions and deletions to facilities during the reporting period, total estimated book value of athletically related plant and equipment net of depreciation, total annual debt service on athletics and university facilities and total debt outstanding on athletics and university facilities;
- (d) Value of endowments at fiscal year-end that are dedicated to the sole support of athletics;
- (e) Value of all pledges at fiscal year-end that support athletics; and
- (f) The athletics department fiscal year-end fund balance.

3.2.4.15.1 Verification and Certification. The report shall be subject to annual agreed-on verification procedures approved by the membership (in addition to any regular financial reporting policies and procedures of the institution) and conducted by a qualified independent accountant who is not a staff member of the institution and who is selected by the institution's chancellor or president or by an institutional administrator from outside the athletics department designated by the chancellor or president. The independent accountant shall verify the accuracy and completeness of the data prior to submission to the institution's chancellor or president and the NCAA. The institution's chancellor or president shall certify the financial report prior to submission to the NCAA. (*Adopted: 1/17/09 effective 8/1/09*)

3.2.4.16 Designation of Team Physician. An active member institution shall designate a team physician for all or each of its intercollegiate teams. The team physician shall be a doctor of medicine (MD) or doctor of osteopathic medicine (DO) with a current license in good standing to practice medicine in the state in which the institution is located. The team physician shall be authorized to oversee the medical services for injuries and illnesses incidental to a student-athlete's participation in intercollegiate athletics. (*Adopted: 1/18/14 effective 8/1/14*)

3.2.4.17 Concussion Management Plan. An active member institution shall have a concussion management plan for its student-athletes. The plan shall include, but is not limited to, the following: (*Adopted: 8/12/10*)

- (a) An annual process that ensures student-athletes are educated about the signs and symptoms of concussions. Student-athletes must acknowledge that they have received information about the signs and symptoms of concussions and that they have a responsibility to report concussion-related injuries and illnesses to a medical staff member;
- (b) A process that ensures a student-athlete who exhibits signs, symptoms or behaviors consistent with a concussion shall be removed from athletics activities (e.g., competition, practice, conditioning sessions) and evaluated by a medical staff member (e.g., sports medicine staff, team physician) with experience in the evaluation and management of concussions;
- (c) A policy that precludes a student-athlete diagnosed with a concussion from returning to athletics activity (e.g., competition, practice, conditioning sessions) for at least the remainder of that calendar day; and
- (d) A policy that requires medical clearance for a student-athlete diagnosed with a concussion to return to the athletics activity (e.g., competition, practice, conditioning sessions) as determined by a physician (e.g., team physician) or the physician's designee.

3.2.4.17.1 Concussion Safety Protocol. [A] An institution shall submit its Concussion Safety Protocol to the Concussion Safety Protocol Committee by May 1 of each year. The protocol shall be consistent with the Inter-Association Consensus: Diagnosis and Management of Sport-Related Concussion Guidelines and shall include: *(Adopted: 1/17/15)*

- (a) Policies and procedures that meet the requirements of Constitution 3.2.4.17;
- (b) Procedures for preparticipation baseline testing of each student-athlete;
- (c) Procedures for reducing exposure to head injuries;
- (d) Procedures for education about concussion, including a policy that addresses return-to-learn;
- (e) Procedures to ensure that proper and appropriate concussion management, consistent with best known practices and the Inter-Association Consensus: Diagnosis and Management of Sport-Related Concussion Guidelines, is made available to any student-athlete who has suffered a concussion;
- (f) Procedures requiring that the process of identifying, removing from game or practice, and assessing a student-athlete for a possible concussion are reviewed annually; and
- (g) A written certificate of compliance signed by the institution's athletics director.

3.2.4.17.1.1 Information to Concussion Safety Protocol Committee. [A] An institution shall provide information to the Concussion Safety Protocol Committee, as the committee may request, concerning any incident in which a student-athlete may have suffered a concussion. *(Adopted: 1/17/15)*

3.2.4.18 Catastrophic Sport Injury Report. An active member institution shall submit data detailing student-athlete catastrophic fatalities, near fatalities and catastrophic injuries (e.g., injuries and illnesses related to head, neck, spine, cardiac, pulmonary, heat, sickle cell trait, eyes) to the NCAA on an annual basis pursuant to policies and procedures that govern such data as determined by the Committee on Competitive Safeguards and Medical Aspects of Sports. *(Adopted: 1/18/14 effective 8/1/14)*

3.2.4.19 Use of a Student-Athlete's Name or Likeness.

3.2.4.19.1 Contracts and Commercial Agreements. For agreements that may involve the use of a student-athlete's name or likeness, an institution shall include language in all licensing, marketing, sponsorship, advertising, broadcast and other commercial agreements that outlines the commercial entity's obligation to comply with relevant NCAA legislation, interpretations and policies on the use of a student-athlete's name or likeness. *(Adopted: 1/15/11 effective 8/1/11)*

3.2.4.19.2 Written Policies. An institution shall maintain written policies for its licensing, marketing, sponsorship, advertising, broadcast and other commercial agreements that may involve the use of a student-athlete's name or likeness. Such policies shall be made available for examination on request by an NCAA staff member or an authorized representative of the NCAA. *(Adopted: 1/15/11 effective 8/1/11)*

3.2.5 Loss of Active Membership.

3.2.5.1 Termination or Suspension. The membership of any active member failing to maintain the academic or athletics standards required for such membership or failing to meet the conditions and obligations of membership may be suspended, terminated or otherwise disciplined by a vote of two-thirds of the delegates present and voting at an annual Convention. Membership shall not be suspended or terminated unless: *(Revised: 3/8/06)*

- (a) A notice of intention to suspend or terminate membership, stating the grounds on which such a motion will be based, is given in writing to the chair of the Board of Directors and to the president or chancellor of the member institution on or before the first day of November prior to the Convention;
- (b) The Board of Directors approves the notification of intention to move for suspension or termination; and
- (c) Such notice is included in the Official Notice of the annual Convention.

3.2.5.1.1 Cessation of Rights and Privileges. All rights and privileges of the member shall cease upon any termination or suspension of active membership.

3.2.5.2 Removal of Accreditation. If an active member's accreditation is removed by its regional accrediting agency, it shall immediately forfeit its membership in the Association. *(Revised: 1/15/11 effective 8/1/11)*

3.2.5.3 Failure to Pay Dues. If an active member fails to pay its annual dues for one year, its membership shall be automatically terminated.

3.2.5.4 Failure to Satisfy the Academic Performance Program. A member institution may be placed in a restricted membership category if the institution or its sports team(s) has failed to comply with the established requirements of the academic performance program. (See Bylaw 14.8.) *(Adopted: 4/29/04 effective 8/1/04, Revised: 1/15/11 effective 8/1/11, 10/27/11; applicable to penalties assessed for the 2012-13 academic year and beyond)*

3.2.5.5 Reinstatement of Terminated Member. Any active member whose membership has been terminated (see Constitution 3.2.5.1) may have it reinstated by a two-thirds vote of the members present and voting at any annual Convention.

3.2.5.6 Reinstatement of Suspended Member. Any active member whose membership has been suspended may be reinstated to good standing in accordance with the terms, if any, of the suspension action, or at

CONSTITUTION, ARTICLE 4

Organization

4.01 General Principles.

4.01.1 Structure. [*] The Association's administrative structure shall include a Board of Governors comprised of institutional presidents or chancellors that oversees Association-wide issues and shall ensure that each division operates consistent with the basic purposes, fundamental policies and general principles of the Association (see Constitution 1 and 2). In addition, the administrative structure of each division shall empower a body of institutional presidents or chancellors to set forth the policies, rules and regulations for operating the division. Further, the administrative structure of each division shall empower a body of athletics administrators and faculty athletics representatives (and in Division III, institutional presidents or chancellors, athletics direct reports and student-athletes) to make recommendations to the division's body of institutional presidents or chancellors and to handle responsibilities delegated to it. *(Adopted: 1/9/96 effective 8/1/97, Revised: 3/8/06, 10/30/14)*

4.01.2 Guarantees. [*] The Association's overall governance structure guarantees its members the following: *(Adopted: 1/9/96 effective 8/1/97)*

4.01.2.1 Budget Allocations. [*] Members are guaranteed revenue through allocations made to each division from the Association's general operating revenue. Division II shall receive at least 4.37 percent of the Association's annual general operating revenue. Division III shall receive at least 3.18 percent of the Association's annual general operating revenue. *(Adopted: 1/9/96 effective 8/1/97)*

4.01.2.1.1 General Operating Revenue. [*] General operating revenue, as used in this section, shall include at least all sources of revenue existing as of January 9, 1996, including revenue from contracts for these existing sources and revenue from any modified, extended or successor contract for such sources. *(Adopted: 1/9/96 effective 8/1/97)*

4.01.2.2 Revenue Guarantee. [◆] All members shall receive revenue from all gross revenue sources received by the Association, unless specifically excluded, through the division's revenue distribution formulas. *(Adopted: 1/9/96 effective 8/1/97)*

4.01.2.2.1 Revenue From New Subdivision Championship. [◆] This provision shall not apply to the distribution of revenue produced directly by a new subdivisional championship in a sport that has a subdivisional championship at the time of the adoption of this legislation. Any revenue produced by such a new subdivisional championship shall be distributed as determined by that subdivision. *(Adopted: 1/9/96 effective 8/1/97)*

4.01.2.2.2 Revenue Distribution Formula. [◆] As used in this section, the components of the division's revenue distribution formulas as they existed at the time of the adoption of this legislation include the Academic Enhancement, Basketball, Conference Grant, Grant-in-Aid, Special Assistance, and Sports Sponsorship funds, and the supplemental and reserve funds intended for distribution to the membership. *(Adopted: 1/9/96 effective 8/1/97)*

4.01.2.2.2.1 Proportion of Revenue. [◆] The revenue distributed through these funds shall be allocated among the funds in the same proportion as existed in the fiscal year 2001-02. *(Adopted: 1/9/96 effective 8/1/97, Revised: 1/14/97)*

4.01.2.2.2.2 Formula for Allocation. [◆] The formula for allocating each such fund among the members shall be as it existed at the time of the adoption of this legislation. *(Adopted: 1/9/96 effective 8/1/97)*

4.01.2.2.2.3 Waiver of Proportionality Requirement. The Board of Directors may waive the proportionality requirements of the revenue guarantee to permit uniform increases to all programs in the Academic Enhancement, Conference Grant and Special Assistance funds. *(Adopted: 1/14/97 effective 8/1/97)*

4.01.2.2.3 Joint Ventures. All marketing joint ventures, involving sports (other than bowl subdivision football) in which the NCAA sponsored a championship as of January 15, 1997, between the Association (or the Association's representative or agent) and a member conference or member institution (or the representative or agent of a member institution or conference) shall be reviewed by the Council. *(Adopted: 1/14/97 effective 8/1/97, Revised: 12/15/06, 11/1/07 effective 8/1/08, 8/7/14)*

4.01.2.2.3.1 Definition. A marketing joint venture is any marketing program that uses the Association's marks or logos in conjunction with those of a conference or member institution. *(Adopted: 1/14/97 effective 8/1/97)*

4.01.2.2.3.2 Approval Process. The principles and overall program of any joint venture defined in Constitution 4.01.2.2.3.1 shall require the approval of the Council and Board of Directors to be enacted as an Association business operation. *(Adopted: 1/14/97 effective 8/1/97, Revised: 11/1/07 effective 8/1/08, 8/7/14)*

4.01.2.3 Championships. [*] Members are guaranteed access to national championships. (*Adopted: 1/9/96 effective 8/1/97*)

4.01.2.3.1 Championships Access. [◆] Members are guaranteed access to national championships (including the play-in structure in certain championships, sizes of championship fields and the number and ratio of automatic qualifying conferences) at least at the level provided as of August 1, 2014. (*Adopted: 1/9/96 effective 8/1/97, Revised: 12/15/06, 1/18/15*)

4.01.2.3.2 Championships—Sports Other Than Football. [◆] With the exception of football, not more than one national championship shall be conducted in each men's and women's sport. (*Adopted: 1/14/97 effective 8/1/97*)

4.01.2.4 Membership Services. [*] Members are guaranteed services provided through the Association's national office at least at the level provided as of January 9, 1996 (e.g., membership services, statistics, research). (*Adopted: 1/9/96 effective 8/1/97*)

4.01.2.5 Special Programs. [*] Members are guaranteed the continuation of Association programs operating at the time of the adoption of this legislation (e.g., the catastrophic-injury insurance program, the drug-testing program, the Division I institutional performance program). In addition, members are guaranteed the continuation of Association programs that were considered by the NCAA Council or Presidents Commission by the spring of 1995 and began operating after the adoption of this legislation. (*Adopted: 1/9/96 effective 8/1/97, Revised: 1/19/13*)

4.02 Definitions and Applications.

4.02.1 Association. [*] The "Association," as used in this Manual, refers to the National Collegiate Athletic Association, a diverse, voluntary, unincorporated Association of four-year colleges and universities, conferences, affiliated associations and other educational institutions. (*Adopted: 1/9/96 effective 8/1/97*)

4.02.2 Faculty Athletics Representative. A faculty athletics representative is a member of an institution's faculty or administrative staff who is designated by the institution's president or chancellor or other appropriate entity to represent the institution and its faculty in the institution's relationships with the NCAA and its conference(s), if any (see also Constitution 6.1.3). (*Revised: 3/8/06*)

4.02.3 "On the Staff." "On the staff," as it applies to individuals from member institutions or conferences who are eligible to serve on committees or as officers or representatives of the Association, is defined as those individuals who receive a regular salary from a member institution or organization for the performance of a regular staff function representing at least 50 percent of the normal workload for a staff member at that institution or conference. In addition, a conference office staff member must be employed at one of the multisport conferences set forth in Constitution 4. An individual on sabbatical or other temporary leave for a period not exceeding 12 consecutive months may be considered to be "on the staff" of an institution or organization. An individual on terminal leave or on leave in excess of 12 consecutive months shall not be considered to be "on the staff." (*Revised: 10/31/02 effective 8/1/03*)

4.02.4 Senior Woman Administrator.

4.02.4.1 Institutional Senior Woman Administrator. [#] An institutional senior woman administrator is the highest-ranking female involved in the management of an institution's intercollegiate athletics program. An institution with a female director of athletics may designate a different female involved with the management of the member's program as a fifth representative to the NCAA governance structure. (*Adopted: 11/1/01 effective 8/1/02, Revised: 10/27/05*)

4.02.4.2 Conference Senior Woman Administrator. A conference senior woman administrator is the highest-ranking female involved with the conduct and policy processes of a member conference's office. A conference with a female commissioner may designate a different female involved with the management of the conference as a representative to the NCAA governance structure. (*Adopted: 11/1/01 effective 8/1/02, Revised: 10/27/05*)

4.02.5 Gender and Diversity Requirements. The Board of Directors membership shall include at least one person who is an ethnic minority and at least one person of each gender, and a single member shall not be considered to meet both minimums. The combined membership of the Council, Committee on Academics and other Division I governance entities (other than sport committees) shall include representatives who comprise at least 20 percent of persons who are ethnic minorities and at least 35 percent of persons of each gender. (*Adopted: 11/1/07 effective 8/1/08, Revised: 8/7/14*)

4.02.6 Selection/Term of Office of Board of Directors and Council.

4.02.6.1 Selection. Members of the Board of Directors shall be selected by the constituencies that they represent. Each membership unit (e.g., conference) that is authorized to select or nominate individuals must have a plan to assure diversity among these individuals. Members of the Council shall be selected by the Board of Directors or a committee designated by the Board of Directors. (*Adopted: 11/1/07 effective 8/1/08, Revised: 8/7/14*)

CONSTITUTION, ARTICLE 5

Legislative Authority and Process

5.01 General Principles. [*]

5.01.1 Basis of Legislation. [*] All legislation of the Association that governs the conduct of the intercollegiate athletics programs of its member institutions shall be adopted by the membership in Convention assembled, or by the divisional governance structures as set forth in Constitution 4, as determined by the constitution and bylaws governing each division, and shall be consistent with the purposes and fundamental policy set forth in Constitution 1, and shall be designed to advance one or more principles such as those set forth in Constitution 2. *(Revised: 1/9/96 effective 8/1/97)*

5.01.2 Approaches to Legislative Process. [*] The membership of the Association recognizes that certain fundamental policies, practices and principles have applicability to all members, while others are applicable to division groupings of members, based on a common philosophy shared among the individual members of the division and on special policies and concerns that are common to the nature and purposes of the institutions in the division. *(Revised: 1/9/96 effective 8/1/97)*

5.02 Definitions and Applications.

5.02.1 Legislative (Constitution and Bylaw) Provisions.

5.02.1.1 Area of Autonomy. An area of autonomy is a legislative provision that provides legislative flexibility to the Atlantic Coast Conference, Big Ten Conference, Big 12 Conference, Pac-12 Conference and Southeastern Conference and their member institutions. The abovementioned conferences are granted autonomy in these areas to permit the use of resources to advance the legitimate educational or athletics-related needs of student-athletes and for legislative changes that will otherwise enhance student-athlete well-being. The requirements for adoption, amendment and expansion of the areas of autonomy are set forth in Constitution 5.3.2.1. A legislative provision that is an area of autonomy is identified by a capital letter A. *(Adopted: 8/7/14)*

5.02.1.2 Dominant. [*] A dominant provision is a regulation that applies to all members of the Association and is of sufficient importance to the entire membership that it requires a two-thirds majority vote of all delegates present and voting in joint session at an annual or special Convention. Dominant provisions are identified by an asterisk (*).

5.02.1.3 Division Dominant. [*] A division dominant provision is a regulation that applies to all members of a division and is of sufficient importance to the division that it requires a two-thirds majority vote of all delegates present and voting at a division's annual or special Convention. Division dominant provisions are identified by the diamond symbol (◆). *(Revised: 1/9/96 effective 8/1/97)*

5.02.1.4 Common. [*] A common provision is a regulation that applies to more than one of the divisions of the Association. A common provision shall be adopted by each of the applicable divisions, acting separately pursuant to the divisional legislative process described in Constitution 5.3, and must be approved by all applicable divisions to be effective. Common provisions are identified by the pound sign (#). *(Adopted: 1/14/97 effective 8/1/97)*

5.02.1.5 Federated. [*] A federated provision is a regulation adopted by a majority vote of the delegates present and voting of one or more of the divisions or subdivisions of the Association, acting separately pursuant to the divisional legislative process described in Constitution 5.3. Such a provision applies only to the division(s) or subdivision(s) that adopts it. *(Revised: 1/9/96 effective 8/1/97)*

5.02.1.6 Football Championship Subdivision Dominant. [FCSD] A Football Championship Subdivision dominant provision is a regulation that applies only to the Football Championship Subdivision and is of sufficient importance to the subdivision that it requires a two-thirds majority vote for adoption or to be amended pursuant to the legislative process set forth in Constitution 5.3. Football Championship Subdivision dominant provisions are identified by the initialization FCSD. *(Adopted: 1/15/11)*

5.1 Conventions and Meetings.

5.1.1 Authorization.

5.1.1.1 Annual Convention. [*] There shall be an annual Convention of this Association during the second week of January or at such other time as may be prescribed by the Board of Governors. *(Revised: 10/30/14)*

5.1.1.2 Special Convention. [*] A special Convention of the Association may be called by the Board of Governors. *(Revised: 1/9/96 effective 8/1/97, 10/30/14)*

5.1.2 Annual or Special Convention Programs.

5.1.2.1 Establishment of Program—Annual or Special Convention. [*] The program of the business session of an annual or special Convention of the Association shall be established by the Board of Governors, acting as the Convention program committee. *(Revised: 1/9/96 effective 8/1/97, 10/30/14)*

5.1.2.1.1 Change in Program. [*] Once adopted by a majority vote of the Convention, the order of business established in the program may be changed or suspended only by a two-thirds vote of the members present and voting.

5.1.2.2 Other Convention Arrangements. [*] All other arrangements for a Convention of the Association or for division legislative meetings shall be made by the NCAA president, subject to the direction and approval of the Board of Governors, which shall serve as the Convention arrangements committee. *(Revised: 10/30/14)*

5.1.2.3 Business and Discussion Sessions.

5.1.2.3.1 General Business Session. [*] When determined necessary by the Board of Governors, an annual or special Convention shall include a general business session to enable all three divisions, meeting in joint session, to act on the dominant legislation specified in Constitution 1 and 2 and elsewhere, and on the actions of any division determined to be contrary to the Association's basic purposes, fundamental policies and general principles. *(Revised: 1/10/91, 1/9/96 effective 8/1/97, 10/30/14)*

5.1.2.3.2 Division Business Sessions. [*] An annual or special Convention shall include separate division business sessions to: *(Revised: 1/10/91, 1/9/96 effective 8/1/97)*

- (a) Enable a single division to act, in accordance with the constitution and bylaws, on federated legislation pertaining to that division;
- (b) Discuss matters of interest to the members of each division; and
- (c) Act upon division membership criteria waiver requests under the provisions of the bylaws.

5.1.2.3.3 Round-Table Discussions. [*] In addition to the division business sessions, a general round-table discussion may be held to enable the membership to discuss matters of general interest.

5.1.3 Annual or Special Convention Delegates.

5.1.3.1 Institutional and Conference Delegates.

5.1.3.1.1 With Voting Privileges. [*] Each active member and each member conference with voting privileges, as specified in Constitution 3.3.2.2, shall be entitled to one vote. Institutions and conferences designating both a male and a female as voting or alternate delegates on the Convention appointment form shall be allowed to appoint four official institutional delegates. In all other circumstances, institutions shall be limited to not more than three official delegates. *(Revised: 1/10/92)*

5.1.3.1.2 Without Voting Privileges. [*] Each member conference without voting privileges shall be entitled to one accredited delegate without voting privilege.

5.1.3.2 Affiliated Delegates. [*] Each affiliated member shall be entitled to one accredited delegate without voting privilege. *(Revised: 1/15/11 effective 8/1/11)*

5.1.3.3 Visiting Delegates. [*] Member and nonmember institutions and organizations are authorized to send visiting delegates, who shall not have voting privileges.

5.1.3.4 Certification and Voting of Delegates. [*] The certification and voting of delegates shall be conducted as follows: *(Revised: 3/8/06)*

- (a) Delegates shall be certified to the NCAA national office as entitled to represent the member in question by the proper executive officers of their institutions or organizations;
- (b) An active member or member conference represented by more than one delegate shall designate (on the proper form signed by the president or chancellor) the delegate entitled to cast its vote. Once the member has so designated its primary voting and alternate voting delegates, transferring the voting rights between or among them is a matter of institutional judgment, inasmuch as the voter and alternate(s) have been approved as voters;
- (c) The same delegate may represent both an active member and a member conference;
- (d) A delegate shall not represent any active member or member conference unless the delegate actually is identified with such member, and an institution's student may not serve as its voting or alternate voting delegate;
- (e) Whenever the Association votes on any question by roll call, either written or via voice, on demand of any delegate, the names of delegates as they vote shall be checked by the Membership Committee in order to verify the authority of the voter; and
- (f) Voting by proxy shall not be allowed.

5.1.3.5 Delegate Participation in Conventions and Meetings.

5.1.3.5.1 Active Delegate. [*] Privileges of the floor and the right to active participation in the business proceedings of any annual or special Convention of the Association is accorded to the following: *(Adopted: 1/10/91, Revised: 1/10/92, 1/9/96 effective 8/1/97, 1/15/11 effective 8/1/11, 10/30/14)*

- (a) Any of the accredited delegates authorized in Constitution 5.1.3.1.1 to represent an active member or member conference with voting privileges;
- (b) The single accredited delegate authorized in Constitution 5.1.3.1.2 to represent a member conference without voting privileges or in Constitution 5.1.3.2 to represent an affiliated member;
- (c) Any member of the Board of Governors, the divisional governance entities per Constitution 4 and the chair (or a committee member designated to speak for the chair) of an NCAA committee listed in Bylaw 21; and
- (d) Any member of a division's Student-Athlete Advisory Committee.

5.1.3.5.2 Visiting Delegate. [*] Visiting delegates authorized in Constitution 5.1.3.3 shall not actively participate in the business proceedings.

5.1.4 Operational Procedures.

5.1.4.1 Quorum. [*] One hundred (100) active members and member conferences represented as prescribed in this constitution shall constitute a quorum for the transaction of the Association's business. For purposes of voting by membership divisions, 40 members of each division shall constitute a quorum.

5.1.4.2 Parliamentary Rules. [*] The rules contained in the current edition of Robert's Rules of Order, Newly Revised, shall be the parliamentary authority for the conduct of all meetings of the Association. Additionally, they shall be the deciding reference used in case of parliamentary challenge in all instances to which they apply and in which they are not superseded by this constitution, the bylaws or any special rule of order adopted by the Association in accordance with Constitution 5.4.3.

5.1.4.3 Consideration of Legislation. [*] Legislation shall be acted upon only at the Convention business sessions in accordance with the constitution and bylaws.

5.1.4.3.1 Order and Grouping of Legislation. [*] In the consideration of groupings of related amendments or amendments-to-amendments, the Convention shall consider first the proposal that contemplates the greatest modification of the present circumstance, followed by the other proposals in the order of decreasing modification. Once a proposal in such a grouping is adopted, those that follow ordinarily will become moot.

5.1.4.3.2 Legislation at General Session. [*] Dominant legislation per Constitution 1 and 2 and elsewhere, and federated legislation determined by the Board of Governors to be contrary to the Association's basic purposes, fundamental policies and general principles shall be acted on by the divisions meeting in joint session. *(Revised: 1/10/91, 1/9/96 effective 8/1/97, 10/30/14)*

5.1.4.3.3 Legislation at Division Sessions. [*] Legislation pertaining only to a single division of the Association may be acted on in a separate legislative session of that division. Federated legislation pertaining to more than a single division of the Association may be acted on by the appropriate divisions during the separate division business sessions. *(Revised: 1/10/91, 1/9/96 effective 8/1/97)*

5.1.4.3.4 Football Classification, Voting. A member institution shall be entitled to vote on legislative issues pertaining only to football in the subdivision in which it is classified.

5.1.4.3.4.1 Restriction. An active member or member conference with no football program shall not be permitted to vote on issues affecting only football.

5.1.4.3.4.2 Football Championship Subdivision Member Applying Bowl Subdivision Football Legislation. A Football Championship Subdivision member that elects to be governed by the legislation pertaining to the Football Bowl Subdivision in accordance with Bylaw 20.7.1.1 shall be eligible to vote on issues pertaining to championship subdivision football. *(Revised: 12/15/06)*

5.1.4.3.4.3 Conference of Football Bowl Subdivision and Football Championship Subdivision Members. A conference whose members are divided between the Football Bowl Subdivision and the Football Championship Subdivision shall vote in the subdivision in which the majority of its members are classified; or if the membership is divided equally between the two subdivisions, the subdivision in which it shall vote shall be determined by the Council Administrative Committee. *(Revised: 12/15/06, 11/1/07 effective 8/1/08, 8/7/14 effective 8/1/15)*

5.1.4.4 Voting Methods. [*] The methods of voting at an NCAA Convention shall be by voice, paddle, roll call and/or secret ballot, in accordance with the following procedures:

- (a) **Voice Vote.** The presiding officer shall determine whether to use voice voting. In the taking of a voice vote, if the presiding officer is in doubt, or on request for a division of the assembly by any member eligible to vote on the particular issue, the presiding officer shall retake the vote by a show of paddles.

- (b) **Paddle Vote.** The presiding officer shall determine whether to use paddle voting, which may be accomplished through electronic collection. In the taking of a vote by show of paddles, if the presiding officer is in doubt, or on the request of any member eligible to vote on the particular issue, the presiding officer shall order the vote to be counted. *(Revised: 1/3/07)*
- (c) **Secret Ballot.** Voting by secret ballot shall be conducted only when so ordered by a majority of the eligible delegates present and voting, after the making of an undebatable motion to vote in that manner.
- (d) **Roll Call.** Voting by roll call, on issues other than those so designated by the Divisions II and III presidential administrative groups, shall be conducted only when so ordered by a majority of the eligible delegates present and voting, after the making of an undebatable motion to vote in that manner. If both a roll-call vote and a secret ballot are moved on a particular issue, the vote shall be taken first on whether to vote by roll call. Any interim or later vote to amend, postpone, reconsider, refer or table a proposal that has been designated by the presidential administrative groups for a roll-call vote during the Convention also must be conducted by roll-call vote. *(Revised: 1/10/92, 1/9/96 effective 8/1/97)*

5.2 Elements of Legislation.

5.2.1 Constitution. [*] The membership may adopt legislation to be included in the constitution of the Association, which sets forth basic purposes, fundamental policies and general principles that generally serve as the basis on which the legislation of the Association shall be derived and which includes information relevant to the purposes of the Association. *(Revised: 1/9/96 effective 8/1/97)*

5.2.2 Operating Bylaws. [*] Each division may adopt legislation to be included in the operating bylaws of the Association, which provide rules and regulations not inconsistent with the provisions of the constitution and which shall include, but not be limited to, the following particulars: *(Revised: 1/9/96 effective 8/1/97)*

- (a) The administration of intercollegiate athletics by members of the Association;
- (b) The establishment and control of NCAA championships (games, matches, meets and tournaments) and other athletics events sponsored or sanctioned by the Association;
- (c) The procedures for administering and enforcing the provisions of the constitution and bylaws; and
- (d) The adoption of rules of play and competition in the various sports, and the delegation of authority in connection with such subjects to individuals, officers or committees.

5.2.3 Administrative Bylaws. [*] The administrative bylaws of the Association (administrative regulations and executive regulations) provide rules and regulations for the implementation of policy adopted by the membership as set forth in the constitution and operating bylaws. They are distinct from the operating bylaws in that, to provide greater flexibility and efficiency in the conduct of the affairs of the Association, they may be adopted or amended by the applicable divisional presidential administrative group, the Division I Council and the Division III Management Council. *(Revised: 1/9/96 effective 8/1/97, 11/1/07 effective 8/1/08, 1/19/13, 7/31/14, 8/7/14)*

5.2.3.1 Administrative Regulations. [*] Each division is empowered to adopt or revise administrative regulations consistent with the provisions of the constitution and bylaws, subject to amendment by the Divisions II and III membership, for the implementation of policy established by legislation governing the general activities of each division. The administrative bylaws may be adopted or amended by the applicable division presidential administrative group, the Division I Council and the Division III Management Council or at any annual or special Convention by a majority vote of the delegates in Divisions II and III present and voting in accordance with the legislative process. *(Revised: 1/9/96 effective 8/1/97, 11/1/07 effective 8/1/08, 8/7/14)*

5.2.3.2 Executive Regulations. [*] Each division is empowered to adopt or revise executive regulations consistent with the provisions of the constitution and bylaws, subject to amendment by the Divisions II and III membership. Executive regulations relate to the administration of the division's championships, the expenditure of the division's funds, the distribution of the income of the division and the general administration of the affairs of the division. The executive regulations may be adopted or amended by the applicable division presidential administrative group, the Division I Council and the Division III Management Council or at any annual or special Convention by a majority vote of the delegates in Divisions II and III present and voting in accordance with the legislative process. *(Revised: 1/9/96 effective 8/1/97, 11/1/07 effective 8/1/08, 8/7/14)*

5.2.3.3 Enforcement Policies and Procedures. [*] The Committee on Infractions is empowered to adopt or revise policies and procedures for the conduct of the Association's infractions program, subject to approval by the Board of Directors for Division I and by the applicable Management Council for Division II and Division III. These policies and procedures shall be developed by the Committee on Infractions, shall not be inconsistent with the provisions of the constitution and bylaws and shall be subject to amendment by the membership. The Infractions Appeals Committee may adopt or revise policies and procedures that relate directly to the appeals process, subject to review and approval by the Board of Directors for Division I, the Presidents Council for Division II and the Management Council for Division III. Such policies and procedures shall not be inconsistent with the provisions of the constitution and bylaws and shall be subject to amendment by the membership. *(Revised: 11/1/07 effective 8/1/08, 4/5/10, 12/20/10, 7/31/14)*

5.2.3.4 Academic Performance Program Policies and Procedures. The Committee on Academics shall have the authority to adopt or revise policies and procedures for the conduct of the academic performance program. The Board of Directors, at its discretion, may review, amend and/or act on any academic performance program policy adopted by the Committee on Academics. (*Adopted: 4/29/04, Revised: 11/1/07 effective 8/1/08, 8/7/14, 11/5/14*)

5.2.4 Resolutions. [*] Legislation of a temporary character effective only for a specified time period may be enacted through resolutions not inconsistent with the constitution, bylaws (including administrative bylaws) and special rules of order (see Constitution 5.4.2).

5.2.5 Interpretations of Constitution and Bylaws. [*] The divisional presidential administrative groups, the Division I Council and the Division II and Division III Management Councils, and the divisional interpretative committees, in the interim between meetings of the Division I Council and the Division II and Division III Management Councils, are empowered to make interpretations of the constitution and bylaws (see Constitution 5.4.1). (*Revised: 1/9/96 effective 8/1/97, 8/31/05, 11/1/07 effective 8/1/08, 8/7/14*)

5.2.6 Special Rules of Order. [*] The Association may adopt special rules of order not inconsistent with the constitution and bylaws. These special rules, with Robert's Rules of Order, Newly Revised, this constitution, and the bylaws, shall be the parliamentary authority for the conduct of all meetings of the Association and, together, shall be the deciding reference used in case of parliamentary challenge in all instances to which they apply (see Constitution 5.4.3).

5.2.7 Statements of Division Philosophy. [*] The membership of a division or subdivision, through appropriate deliberative processes, may prepare a statement of division philosophy relating to the development and operation of an intercollegiate athletics program in the division. Such a statement is not binding on member institutions but shall serve as a guide for the preparation of legislation by the division and for planning and implementation of programs by institutions and conferences (see Constitution 5.4.4).

5.3 Amendment Process.

5.3.1 Authorizing Legislation.

5.3.1.1 Amendment. [*] The dominant provisions of Constitution 1 and 2 and elsewhere and the division dominant provisions may be amended only at an annual or special Convention. In Division I, federated provisions may be amended as specified in Constitution 5.3.2. In Divisions II and III, federated provisions may be amended at any annual or special Convention. (*Revised: 1/9/96 effective 8/1/97, 1/14/97 effective 8/1/97*)

5.3.1.2 Amendment-to-Amendment—Dominant Provisions. [*] A proposed amendment to the dominant provisions of Constitution 1 and 2 and elsewhere may be amended at any annual or special Convention. From July 15 through September 15, sponsors of proposed legislation may refine and change proposals in any manner that is germane to the original proposal. After September 15, proposed amendments may be amended only if the amendment to the proposed amendment does not increase the modification of the provision to be amended. (*Adopted: 1/9/96 effective 8/1/97*)

5.3.1.3 Amendment-to-Amendment—Division Dominant Provisions. A proposed amendment to a division dominant provision may be amended at any annual or special Convention. From July 15 through September 15, sponsors of proposed legislation may refine and change proposals in any manner that is germane to the original proposal. After September 15, proposed amendments may be amended only if the amendment to the proposed amendment does not increase the modification of the provision to be amended. (*Adopted: 1/9/96 effective 8/1/97*)

5.3.2 Division I Legislative Process.

5.3.2.1 Process for Areas of Autonomy.

5.3.2.1.1 Authority to Adopt or Amend Legislation. The Atlantic Coast Conference, Big Ten Conference, Big 12 Conference, Pac-12 Conference and Southeastern Conference and their member institutions shall have the authority to adopt or amend legislation that is identified as an area of autonomy. (*Adopted: 8/7/14*)

5.3.2.1.2 Areas of Autonomy. The Atlantic Coast Conference, Big Ten Conference, Big 12 Conference, Pac-12 Conference and Southeastern Conference and their member institutions are granted autonomy in the following areas to permit the use of resources to advance the legitimate educational or athletics-related needs of student-athletes and for legislative changes that will otherwise enhance student-athlete well-being: (*Adopted: 8/7/14*)

- (a) **Athletics Personnel.** Definitions and limitations on athletics personnel and legislation to meet the support needs of student-athletes while properly managing the number of personnel directly or indirectly associated with a sport in a manner consistent with the need for competitive balance.
- (b) **Insurance and Career Transition.** Legislation related to student-athletes securing loans to purchase career-related insurance products (e.g., disability, loss-of-value), institutions providing insur-

ance-related expenses for student-athletes and the role of agents and advisors in assisting student-athletes with career planning and decision making.

- (c) **Promotional Activities Unrelated to Athletics Participation.** Legislation related to promotional activities for careers and pursuits unrelated athletics participation.
- (d) **Recruiting Restrictions.** Legislation designed to reduce the infringement on a prospective student-athlete's academic preparation.
- (e) **Pre-enrollment Expenses and Support.** Legislation related to expenses and support provided in the recruiting process and the transition to college enrollment, including assistance to families to visit campus, medical expenses and academic support during the summer prior to enrollment, and transportation to enroll.
- (f) **Financial Aid.** Legislation related to a student-athlete's individual limit on athletically related financial aid, terms and conditions of awarding institutional financial aid, and the eligibility of former student-athletes to receive undergraduate financial aid.
- (g) **Awards, Benefits and Expenses.** Legislation related to awards, benefits and expenses for enrolled student-athletes and their families and friends.
- (h) **Academic Support.** Legislation related to the academic support of student-athletes.
- (i) **Health and Wellness.** Legislation related to the health and wellness of student-athletes, including insurance and other items to permit appropriate and sufficient care.
- (j) **Meals and Nutrition.** Legislation related to meals and nutritional demands for student-athletes.
- (k) **Time Demands.** Legislation that establishes an appropriate balance between athletics and other student-athlete activities and fosters participation in educational opportunities outside intercollegiate athletics.

5.3.2.1.2.1 Additions to the Areas of Autonomy. Additions to the areas of autonomy may be recommended to the Board of Directors on support of three of the five conferences named in Constitution 5.3.2.1.1. An addition shall require a 60 percent majority vote of the president or chancellor members of the Board of Directors present and voting. *(Adopted: 8/7/14)*

5.3.2.1.2.1.1 Standard of Review. An addition to the areas of autonomy shall be subject to the standard that it must permit the use of resources to advance the legitimate educational or athletics-related needs of student-athletes, support legislative changes that will otherwise enhance student-athlete well-being, or complement and align with the values of higher education. *(Adopted: 8/7/14)*

5.3.2.1.2.2 Application to Other Conferences/Institutions. Legislation set forth as an area of autonomy may be applied by other member institutions at each conference's respective discretion, which may include delegation of such discretion to its member institutions. *(Adopted: 8/7/14)*

5.3.2.1.3 Sponsorship.

5.3.2.1.3.1 Amendment. An amendment to an area of autonomy may be sponsored by any conference listed in Constitution 5.3.2.1.1, subject to review by the other conferences listed in Constitution 5.3.2.1.1 and approval by a presidential review group that includes at least one representative from each conference listed in Constitution 5.3.2.1.1. *(Adopted: 8/7/14)*

5.3.2.1.3.2 Amendment-to-Amendment. An amendment to an amendment of an area of autonomy may be sponsored by one of the conferences named in Constitution 5.3.2.1.1. *(Adopted: 8/7/14)*

5.3.2.1.4 Submission Deadlines.

5.3.2.1.4.1 Amendment. An amendment to an area of autonomy must be submitted to the national office by 5 p.m. Eastern time September 1. From September 1 until 5 p.m. Eastern time November 1, only the sponsors may refine and change proposals in any manner that is germane to the original proposal. *(Adopted: 8/7/14)*

5.3.2.1.4.2 Amendment-to-Amendment. An amendment to an amendment of an area of autonomy may be submitted to the national office from 5 p.m. Eastern time November 1 until 5 p.m. Eastern time November 15. Any such amendment shall not increase the modification of the provision to be amended in the original proposal. *(Adopted: 8/7/14)*

5.3.2.1.5 Notification to Membership.

5.3.2.1.5.1 Initial Notification. Proposed amendments shall be available on the NCAA website for membership review and comment not later than October 1. *(Adopted: 8/7/14)*

5.3.2.1.5.2 Official Notice. Proposed amendments and amendments-to-amendments shall be available on the NCAA website for membership review and comment not later than December 1. *(Adopted: 8/7/14)*

5.3.2.1.6 Membership and Council Review.

5.3.2.1.6.1 Membership Review. All Division I members may provide comments related to proposed amendments and amendments-to-amendments via the NCAA website for a 60-day period beginning on the date of the initial notification to the membership (not later than October 1). *(Adopted: 8/7/14)*

5.3.2.1.6.2 Council Review. The Council shall review proposed amendments. The review may include a position of support or opposition. *(Adopted: 8/7/14)*

5.3.2.1.6.3 Forum Review. The conferences named in Constitution 5.3.2.1.1 shall review proposed amendments and amendments-to-amendments during a forum that is conducted before a business session during which voting on the proposed amendments and amendments-to-amendments occurs. *(Adopted: 8/7/14)*

5.3.2.1.7 Voting Process.

5.3.2.1.7.1 Business Session. Consideration of proposed amendments and amendments-to-amendments shall occur during a business session involving the member institutions of the conferences named in Constitution 5.3.2.1.1. The president or chancellor of each institution shall appoint one representative and each of the five conferences shall appoint three student-athlete representatives to cast votes on proposed amendments and amendments-to-amendments. *(Adopted: 8/7/14)*

5.3.2.1.7.2 Adoption of Amendments and Amendments-to-Amendments. Adoption of proposed amendments and amendments-to-amendments shall require: *(Adopted: 8/7/14)*

- (a) Approval of three of the five conferences based on a simple majority vote of the representatives within each conference and a 60 percent majority vote of representatives present and voting; or
- (b) Approval of four of the five conferences based on a simple majority vote of the representatives within each conference and a simple majority vote of representatives present and voting.

5.3.2.1.7.3 Finality of Action. An amendment adopted during a business session shall be final upon adjournment of the business session. The concept of a defeated amendment may not be resubmitted as a new amendment for a two-year period. *(Adopted: 8/7/14)*

5.3.2.2 Process for Areas of Council Governance and Football-Specific Legislation.

5.3.2.2.1 Authority to Adopt or Amend Legislation. Federated legislation applicable to Division I may be adopted or amended at any meeting of the Council. *(Adopted: 8/7/14 effective 8/1/15)*

5.3.2.2.1.1 Emergency or Noncontroversial Legislation. The Council may adopt emergency or noncontroversial legislation during any meeting by at least a three-fourths majority vote of its members present and voting. *(Adopted: 8/7/14 effective 8/1/15)*

5.3.2.2.2 Sponsorship.

5.3.2.2.2.1 Amendments and Amendments-to-Amendments. An amendment or an amendment-to-amendment in an area of Council governance may be sponsored by the Board of Directors, the Council or a conference listed in Constitution 4.2.1-(a), 4.2.1-(b) or 4.2.1-(c). A football-specific amendment or amendment-to-amendment may be sponsored by a Football Bowl Subdivision conference or a Football Championship Subdivision conference. *(Adopted: 8/7/14 effective 8/1/15)*

5.3.2.2.3 Submission Deadlines.

5.3.2.2.3.1 Amendment. An amendment must be submitted to the national office by 5 p.m. Eastern time September 1. From September 1 until 5 p.m. Eastern time November 1, only the sponsor may refine and change a proposal in any manner that is germane to the original proposal. *(Adopted: 8/7/14 effective 8/1/15)*

5.3.2.2.3.2 Amendments-to-Amendments. An amendment to an amendment may be submitted to the national office from 5 p.m. Eastern time November 1 until 5 p.m. Eastern time November 15. Any such amendment shall not increase the modification of the provision to be amended in the original proposal. *(Adopted: 8/7/14 effective 8/1/15)*

5.3.2.2.4 Notification to Membership.

5.3.2.2.4.1 Initial Notification. Proposed amendments shall be available on the NCAA website for membership review and comment not later than October 1. *(Adopted: 8/7/14 effective 8/1/15)*

5.3.2.2.4.2 Official Notice. Proposed amendments and amendments-to-amendments shall be available on the NCAA website for membership review and comment not later than December 1. *(Adopted: 8/7/14 effective 8/1/15)*

5.3.2.2.5 Membership and Council Review.

5.3.2.2.5.1 Membership Review. All Division I members may provide comments related to proposed amendments and amendments-to-amendments via the NCAA website. *(Adopted: 8/7/14 effective 8/1/15)*

5.3.2.2.5.2 Council Review. The Council shall review proposed amendments. The review may include a position of support or opposition. The Council may sponsor an amendment-to-amendment by majority vote of its members present and voting. *(Adopted: 8/7/14 effective 8/1/15)*

5.3.2.2.6 Voting Process.

5.3.2.2.6.1 Adoption of Amendments and Amendments-to-Amendments. Adoption of proposed amendments and amendments-to-amendments shall require a majority vote of representatives of the Council present and voting. *(Adopted: 8/7/14 effective 8/1/15)*

5.3.2.2.6.1.1 Bowl Subdivision and Championship Subdivision Football. Members of the Council who are representatives of conferences that are members of the Football Bowl Subdivision and the Football Championship Subdivision shall vote separately in their respective subdivisions on legislative issues that pertain only to football. *(Adopted: 8/7/14 effective 8/1/15)*

5.3.2.2.6.1.1.1 Geographical Representation of Independents. An institution classified as a Football Bowl Subdivision independent or a Football Championship Subdivision independent shall have its views expressed on football issues by a predetermined Football Bowl Subdivision or Football Championship Subdivision conference representative, respectively, within the institution's geographical region. *(Adopted: 8/7/14 effective 8/1/15)*

5.3.2.2.6.2 Finality of Action. Legislation adopted by the Council shall be considered final at the conclusion of the next Board of Directors meeting, subject to review by the Board of Directors as described in Constitution 4.2.2. If a proposal does not receive a majority vote of Council members present and voting, it shall be considered defeated. The concept of a defeated amendment may not be resubmitted as a new amendment for a two-year period. *(Adopted: 8/7/14 effective 8/1/15)*

5.3.2.2.7 Rescission Process. An amendment adopted with less than an 85-percent majority vote of Council members present and voting shall be subject to a 60-day rescission period. An amendment adopted with an 85-percent majority vote or greater of Council members present and voting shall not be subject to a rescission process. A rescinded amendment may not be resubmitted as a new amendment for a two-year period. *(Adopted: 8/7/14 effective 8/1/15)*

5.3.2.2.7.1 Notification to Membership. Notification of the adoption of legislation by the Council shall be provided to the membership within 15 days of the date of the Board of Directors' meeting on which the adoption becomes final. *(Adopted: 8/7/14 effective 8/1/15)*

5.3.2.2.7.2 Submission of Rescission Requests. A rescission request may be submitted through the NCAA website by an active member institution with voting privileges. A request must be received in the national office not later than 5 p.m. Eastern time within 60 days of the date of the Board of Directors meeting on which the adoption or defeat becomes final. A request must be approved by the institution's chancellor or president. The institution's chancellor or president or his or her designated representative may submit the rescission request to the national office. *(Adopted: 8/7/14 effective 8/1/15)*

5.3.2.2.7.3 Threshold for Rescission. An amendment shall be rescinded upon submission of rescission requests from at least two-thirds of all active Division I institutions that are eligible to submit a request. An amendment that pertains only to football shall be rescinded in the applicable subdivision upon submission of rescission requests from at least two-thirds of all active Football Bowl Subdivision or Football Championship Subdivision institutions that are eligible to submit a request. *(Adopted: 8/7/14 effective 8/1/15)*

5.3.2.2.8 Other Rules and Procedures. The Board of Directors may approve such additional rules and procedures governing the legislative process consistent with the provisions of this section (Constitution 5.3.2) as it determines are necessary to ensure an efficient process to meet the legislative needs of the membership. *(Adopted: 1/9/96 effective 8/1/97)*

5.3.3 Sponsorship—Amendments to Dominant Provisions.

5.3.3.1 Amendment. [*] An amendment to a dominant provision of Constitution 1 and 2 and elsewhere may be sponsored by the Board of Governors. *(Adopted: 1/9/96 effective 8/1/97; Revised: 10/30/14)*

5.3.3.2 Amendment-to-Amendment. [*] An amendment-to-amendment to a dominant provision of Constitution 1 and 2 and elsewhere may be sponsored by the Board of Governors. *(Adopted: 1/9/96 effective 8/1/97; Revised: 10/30/14)*

5.3.3.3 Editorial Changes. [*] The presiding officer may permit changes in the wording of proposed amendments of a purely editorial nature or to correct typographical errors.

5.3.4 Sponsorship—Amendments to Division Dominant Provisions.

5.3.4.1 Amendment. An amendment to a division dominant provision may be introduced to the Board of Directors by any one regular or alternate member of the Board. *(Adopted: 1/9/96, Revised: 1/14/97 effective 8/1/97)*

5.3.4.2 Amendment-to-Amendment. An amendment-to-amendment to a division dominant provision may be introduced to the Board of Directors by any one regular or alternate member of the Board. (*Adopted: 1/9/96, Revised: 1/14/97 effective 8/1/97*)

5.3.4.3 Editorial Changes. The presiding officer may permit changes in the wording of a proposed amendment of a purely editorial nature or to correct typographical errors. (*Adopted: 1/9/96 effective 8/1/97*)

5.3.5 Submission Deadline.

5.3.5.1 Dominant Provisions.

5.3.5.1.1 Amendments. [*] Amendments to dominant provisions of Constitution 1 and 2 and elsewhere shall be sponsored by the Board of Governors in accordance with the following deadlines: (*Adopted: 1/9/96 effective 8/1/97; Revised: 10/30/14*)

- (a) Annual Convention—September 1.
- (b) Special Convention—Ninety days before a special Convention.

5.3.5.1.1.1 Exception. [*] The Board of Governors, by a two-thirds majority of its members present and voting, may establish a later date for the submission of amendments for an annual Convention when a special Convention is held after September 1. (*Adopted: 1/9/96 effective 8/1/97; Revised: 10/30/14*)

5.3.5.1.2 Amendments-to-Amendments. [*] The Board of Governors must submit amendments to its original proposals in writing and such amendments-to-amendments must be submitted not later than 5 p.m. Eastern time September 15, unless the amendment-to-amendment does not increase the modification specified in the original proposal. Any amendment to a proposed amendment submitted after September 15 shall not increase the modification of the original proposal and must be submitted in writing not later than 5 p.m. Eastern time November 1 before an annual Convention or 60 days before a special Convention. The Board of Governors may propose amendments-to-amendments at the time of the Convention without meeting these procedural requirements, provided the proposed amendment-to-amendment has been approved by two-thirds of the Board of Governors and copies are distributed before or during the business session. (*Adopted: 1/9/96 effective 8/1/97, Revised: 3/1/06, 10/30/14*)

5.3.5.2 Division Dominant Provisions.

5.3.5.2.1 Amendments. Amendments to division dominant provisions shall be sponsored by the appropriate divisional presidential administrative group in accordance with the following deadlines: (*Adopted: 1/9/96 effective 8/1/97*)

- (a) Annual Convention—September 1.
- (b) Special Convention—Ninety days before a special Convention.

5.3.5.2.1.1 Exception. A divisional presidential administrative group, by a two-thirds majority of its members present and voting, may establish a later date for the submission of amendments for an annual Convention when a special Convention is held after September 1. (*Adopted: 1/9/96 effective 8/1/97*)

5.3.5.2.2 Amendments-to-Amendments. The appropriate divisional presidential administrative group must submit amendments to its original proposals in writing and such amendments must be submitted not later than 5 p.m. Eastern time September 15, unless the amendment-to-amendment does not increase the modification specified in the original proposal. Any amendment to a proposed amendment submitted after September 15 shall not increase the modification of the original proposal and must be submitted in writing not later than 5 p.m. Eastern time November 1 before an annual Convention or 60 days before a special Convention. A divisional presidential administrative group may propose amendments-to-amendments at the time of the Convention without meeting these procedural requirements, provided the proposed amendment-to-amendment has been approved by two-thirds of the divisional presidential administrative group and copies are distributed before or during the appropriate business session. (*Adopted: 1/9/96 effective 8/1/97, Revised: 3/1/06*)

5.3.6 Notification to Membership.

5.3.6.1 Amendments to Dominant Provisions.

5.3.6.1.1 Initial Publication. [*] Amendments to dominant provisions of Constitution 1 and 2 and elsewhere sponsored by the Board of Governors shall be published for the information of the membership as follows: (*Adopted: 1/9/96 effective 8/1/97; Revised: 10/30/14*)

- (a) Not later than September 23 for an annual Convention.
- (b) Not later than 75 days before a special Convention.

5.3.6.1.2 Official Notice. [*] A copy of the proposed amendments shall be mailed to all members of the Association not later than November 15 before an annual Convention or 45 days before a special Convention. (*Adopted: 1/9/96 effective 8/1/97*)

5.3.6.1.3 Delayed Date. [*] If the Board of Governors establishes a date later than July 15 or September 1 for the submission of amendments to dominant provisions for an annual Convention, it, by a two-thirds majority of its members present and voting, may establish a later date for publishing copies of the proposed amendments for information of the membership. (*Adopted: 1/9/96 effective 8/1/97; Revised: 10/30/14*)

CONSTITUTION, ARTICLE 6

Institutional Control

6.01 General Principle.

6.01.1 Institutional Control. The control and responsibility for the conduct of intercollegiate athletics shall be exercised by the institution itself and by the conference(s), if any, of which it is a member. Administrative control or faculty control, or a combination of the two, shall constitute institutional control.

6.1 Institutional Governance.

6.1.1 President or Chancellor. A member institution's president or chancellor has ultimate responsibility and final authority for the conduct of the intercollegiate athletics program and the actions of any board in control of that program. The term "president or chancellor" refers to the individual with primary executive authority for an institution and does not include an individual who has executive responsibility over a system of institutions. *(Revised: 3/8/06, 5/22/13)*

6.1.2 Athletics Board. A board in control of athletics or an athletics advisory board, which has responsibility for advising or establishing athletics policies and making policy decisions, is not required. However, if such a board exists, it must conform to the following provisions.

6.1.2.1 Composition. Administration and/or faculty staff members shall constitute at least a majority of the board in control of athletics or an athletics advisory board, irrespective of the president or chancellor's responsibility and authority or whether the athletics department is financed in whole or in part by student fees. If the board has a parliamentary requirement necessitating more than a simple majority in order to transact some or all of its business, then the administrative and faculty members shall be of sufficient number to constitute at least that majority. *(Revised: 3/8/06)*

6.1.2.1.1 Administrator Defined. An administrator (for purposes of this legislation) is an individual employed by the institution as a full-time administrative staff member who holds an academic appointment, is directly responsible to the institution's president or chancellor or serves as a chief administrative official (e.g., admissions director, finance officer, department head, or athletics department head). Other nonacademic staff members and individuals who are members of an institution's board of trustees or similar governing body would not be considered to be administrators for purposes of this regulation. *(Revised: 3/8/06)*

6.1.2.1.2 Board Subcommittee. If a board subcommittee is appointed, it is not necessary for the subcommittee to have majority control by administration and/or faculty members (see Constitution 6.1.2.1), provided all actions of the subcommittee are approved by the entire board before becoming effective. However, if the subcommittee's actions are effective permanently or become effective immediately and remain in effect until reviewed by the entire board at a later date, the subcommittee's membership must satisfy the majority-control requirement.

6.1.2.1.3 Attendance. A parliamentary majority of administrators and faculty members of a board in control of athletics is not required to be present at any single meeting in order to conduct business.

6.1.2.2 Chair or Voting Delegate. Only an administrator or faculty member (as opposed to a student, alumnus or governing board member) may serve as chair of a member institution's board in control of intercollegiate athletics or represent the board as the institution's voting delegate at Conventions. Institutional representatives in these positions have responsibility for advising or establishing athletics policies and making policy decisions that require administrative and/or faculty control.

6.1.3 Faculty Athletics Representative. A member institution shall designate an individual to serve as faculty athletics representative. An individual so designated after January 12, 1989, shall be a member of the institution's faculty or an administrator who holds faculty rank and shall not hold an administrative or coaching position in the athletics department. Duties of the faculty athletics representative shall be determined by the member institution. *(Adopted: 1/11/89)*

6.1.4 Student-Athlete Advisory Committee. Each institution shall establish a student-athlete advisory committee for its student-athletes. The composition and duties of the committee shall be determined by the institution. *(Adopted: 1/10/95 effective 8/1/95)*

6.2 Budgetary Control.

6.2.1 Normal Budgeting Procedures. The institution's annual budget for its intercollegiate athletics programs shall be controlled by the institution and subject to its normal budgeting procedures.

6.2.2 President or Chancellor Approval. The institution's president or chancellor or an institutional administrator designated by the president or chancellor from outside the athletics department shall approve the annual budget in the event that the institution's normal budgeting procedures do not require such action. *(Revised: 3/8/06)*

EXHIBIT 2

IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF ILLINOIS
EASTERN DIVISION

ADRIAN ARRINGTON, DEREK)
OWENS, ANGELA PALACIOS and)
KYLE SOLOMON, individually)
and on behalf of all others)
similarly situated,)

Plaintiffs,)

-vs-)

NATIONAL COLLEGIATE)
ATHLETIC ASSOCIATION,)

Defendant.)

CASE NO.

11-cv-06356

DEPOSITION OF DENNIS POPPE

The deposition upon oral examination of DENNIS POPPE, a witness produced and sworn before me, Dianne Lockhart, CSR, RMR, CRR, Notary Public in and for the County of Marion, State of Indiana, taken on behalf of the Plaintiffs at the offices of Krieg DeVault LLP, One Indiana Square, Suite 2800, Indianapolis, Marion County, Indiana, on the 3rd day of April, 2013, at 9:30 a.m., pursuant to the Federal Rules of Civil Procedure with written notice as to time and place thereof.

1 A Yes.

2 Q And when you held that view, what did you mean
3 by the guideline had to account for the
4 resources of all our institutions?

5 A The ability to -- in other words, we have such a
6 diversity within our membership from within the
7 state of Ohio a institution like Ohio State and
8 then you have an Oberlin, a small school,
9 smaller budget, smaller staff, less
10 capabilities. And so as an Association, we have
11 to establish policies across the board for all
12 member institutions, so you need to keep that in
13 mind as to what is feasible for all member
14 institutions whenever you develop a policy,
15 regardless of what it is.

16 Q And that includes concussion-related policies,
17 in your view?

18 A Sports medicine, yes.

19 Q And then if you go to the top of that same page,
20 do you see that there are remarks attributed to
21 David Klossner in that second sentence of the
22 first bullet point?

23 "This meeting should provide
24 recommendations on what is medically necessary,
25 and not be limited by resource discussions."

EXHIBIT 3



National Collegiate Athletic Association

NCAA News Archive - 2009

[« back to 2009](#) | [Back to NCAA News Archive Index](#)

NCAA changes to minimize risk of injury

Dec 10, 2009 9:53:53 AM

The NCAA News

The NCAA's health and safety needs are addressed through the collaborative efforts of national office staff, governance committees, sports rules committees, sports issues committees and external associations.

The NCAA Committee on Competitive Safeguards and Medical Aspects of Sports advises the Association's constituents and continually tracks on events and issues related to the health and safety of the student-athlete. The committee acts on issues through the use of NCAA injury-surveillance data, NCAA-sponsored sports-science research, expert opinion and clinical experience.

The following examples highlight significant changes that have mitigated the risk of injury in sports participation.

NCAA sports rules modifications

Baseball

1998 – The establishment of a wood-like standard for non-wood bats protects the integrity of the game and the safety of the student-athletes.

Ice hockey

1995 – An analysis of concussion injuries in ice hockey leads to rules changes and officiating emphasis on reducing hitting from behind and contact to the head.

Women's lacrosse

2003 – The use of appropriate eye protection in women's lacrosse is mandated to minimize the risk of catastrophic eye injury.

Track and field

2002 – The size of the pole vault landing pit is increased.

Wrestling

1998 – Following the sudden deaths of three collegiate wrestlers, the NCAA Wrestling Rules Committee and the NCAA Committee on Competitive Safeguards and Medical Aspects of Sports implement a mandatory weight-certification program that promotes safe weight-management practices.

1998 – The NCAA requires all wrestling coaches covering practice or competition to be certified in first aid and cardiopulmonary resuscitation.

Football

1976 – Rule changes for the 1976 football season eliminate the head and face as a primary and initial contact area for blocking and tackling.

1997 – Modifications of permissible equipment and contact in spring football are implemented to reduce risk of injury.

2003 – Divisions I, II, and III modify permissible equipment during the preseason period for student-athletes to minimize risk of heat illness.

2005 – The NCAA Football Rules Committee changes college football rules regarding spearing and head-down contact. In addition to the rule change, the NCAA focuses on the education of student-athletes, coaches, officials and administrators regarding prevention of head and neck injuries.

2008 – The NCAA makes the horse-collar tackle illegal, revamps illegal contact of an opponent and simplifies the chop-block rule. More emphasis is placed on eliminating hits on defenseless players and blows to the head. No player is permitted to initiate contact and target an opponent with the crown of his helmet, and no player is permitted to initiate contact and target a defenseless opponent above the shoulders.

2009 – A rule is added to allow for conference review and sanctions on fouls related to targeting/initiating contact to players.

NCAA legislation

A more complete listing of NCAA legislation involving health and safety issues is summarized in Appendix A of the NCAA Sports Medicine Handbook. Examples of the most recent changes include:

2003 – Divisions I, II, and III modify permissible equipment and multiple practice sessions by mandating an acclimatization preseason period for student-athletes to minimize their risk of heat illness and general injuries in football.

2003 – Division I modifies the summer workout period to help minimize the risk of heat illness and general injuries. The legislation mandates that a sports-medicine staff member be present during conditioning sessions and that supervising strength and conditioning coaches be certified in first aid and cardiopulmonary resuscitation.

2005 – The NCAA approves legislation that requires member institutions to certify insurance coverage for medical expenses resulting from athletically related injuries sustained while participating in defined covered events.

2007 – NCAA Divisions I, II and III approve legislation that mandates medical examinations for all student-athletes. Before participation in any practice, competition or out-of-season conditioning activities, student-athletes who are beginning their initial season of eligibility are required to undergo a medical examination or evaluation administered or supervised by a physician.

2009 – Division III approves sport-safety training legislation that requires each head coach to maintain current certification in first aid, cardiopulmonary resuscitation and automatic external defibrillator use.

NCAA Sports Medicine Handbook

The guidelines in the Sports Medicine Handbook are developed on topics relevant to intercollegiate athletics, applicable to a large population of student-athletes and not accessible in another easily obtainable source. The guidelines are reviewed or updated at least every four years. Guidelines added to the handbook since 1994:

1994 – The "Cold Stress" guideline is added to educate the membership about reducing life-threatening condition due to cold exposures in athletics.

1994 – The "Concussion or Mild Traumatic Brain Injury in the Athlete" guideline is added to help reduce recognition-management and return-to-play decisions for student-athletes with concussions, therefore helping reduce catastrophic events secondary to concussions.

1997 – The "Lightning Safety" guideline is added and is recognized as the premium standard for preventing lightning-strike incidence in sports.

2000 – The "Institutional Alcohol, Tobacco and Other Drug-Education Programs" guideline is added to educate the NCAA membership on the minimal criteria for conducting an adequate drug-education program to prevent drug and alcohol abuse.

2004 – The "Catastrophic Incident in Athletics" guideline is added to help institutions appropriately respond to a catastrophic medical event.

2006 – The "Depression: Interventions for Intercollegiate Athletics" guideline is added to address suicide in the sport population and to educate the membership on its prevalence and the importance of early recognition and appropriate referral.

Additional NCAA health and safety initiatives

1983 – The NCAA starts a sports-injury surveillance program to collect accurate and reliable data on injury incidence in NCAA championships sports and to analyze, interpret and disseminate those data to assist evidence-based decision-making. The goal continues to be reducing injury rates through suggested changes in rules, protective equipment or coaching techniques based on the data.

1986 – The NCAA begins conducting drug testing for NCAA-banned substances at Divisions I, II, and III championships. All student-athletes participating in NCAA championships are subject to drug testing.

1990 – NCAA Divisions I and II start year-round drug testing. Any Division I or II student-athlete may be tested for training drugs such as anabolic steroids.

1992-2005 – A 13-year analysis of non-contact anterior cruciate ligament injuries in basketball and soccer leads to a focus on prevention efforts for female athletes, who have a higher risk than males for such injuries.

2002 – Division I out-of-season workout guidelines are forwarded to the membership in an effort to curb unsafe practices.

2004 – After the death of a Cornell University student athlete in lacrosse, the NCAA hosts a multi-organizational summit addressing the prevalence, mechanism and prevention of commotio cordis in sports. Language is added immediately to the "Emergency Care and Coverage" guideline in the NCAA Sports Medicine Handbook that recommends planned access to early defibrillation as well as continued research and development of appropriate chest protectors for the sports of men's lacrosse.

2004 – Divisions II and III initiate an educational campaign to increase awareness of institutional responsibility for protecting the health of and providing a safe environment for all student-athletes participating in preseason workouts.

2006 – The NCAA teams with the American Council on Education and United Educators to publish "Safety in Student Transportation," a 60+-page resource guide that colleges and universities can use to minimize the risk involved with transporting students.

2006 – The NCAA partners with Varsity Brands, the parent company of the largest national cheer organizations, to undertake an important cheerleading risk-management initiative to enhance safety for college cheerleaders. As a first step, the NCAA's Catastrophic Injury Insurance Program includes a new requirement that cheerleading activities must be supervised by a safety-certified coach or advisor to be considered a covered event.

2009 – The NCAA recommends its member institutions test student-athletes to confirm their sickle-cell trait status if that information is not already known.

EXHIBIT 4

NCAA Football Rules Committee

Historical review of rules intended to prevent/reduce head injury

1906 – As the culmination of six meetings called by President Teddy Roosevelt to address the number of catastrophic injuries in college football, a joint committee approves nearly 30 changes to the playing rules, with most intended to remove brutality and to change the character of the game in a positive way.

1916 – First NCAA Football Rules Code developed and published.

1939 – All players required to wear helmets.

1962 – Recommended that properly fitted mouth protectors be worn.

1964 – No player may deliberately and maliciously use his helmet or head to butt or ram an opponent.

1970 – Spearing is defined as “the deliberate and malicious use of the head and helmet in an attempt to punish a runner after his momentum has stopped.”

1973 – All players required to wear mouth protectors.

1973 – All players must have a helmet “with a secured chin strap.”

1975 – Recommended that helmets meet NOCSAE test standards, and announced that it would be required starting with the 1978 season.

1976 – All players must have a helmet with a four-point chin strap fastened to participate in play.

1976 – Spearing redefined as “the deliberate use of the helmet in an attempt to punish the opponent.”

NCAA10145748

1979 – Striking a runner with the crown or top of the helmet added as a foul.

1994 – Fighting defined and penalties established.

1996 – If the ball carrier's helmet comes off, the play is blown dead immediately. Also, the snapper is protected and may not be contacted for one second after snapping the ball.

2002 – Wording added to define a "defenseless player" and a point of officiating emphasis added to protect these players.

2006 – Eye shields must be completely clear to allow for quick medical diagnoses of student-athletes.

2005 – Modified rules regarding spearing and head-down contact, removing any reference to "intent." A significant educational focus is placed on the prevention of head and neck injuries with the membership and encourages appropriate groups (e.g., American Football Coaches Association) to teach proper tackling techniques.

2008 – The NCAA makes the horse-collar tackle illegal, revamps illegal contact of an opponent and simplifies the chop-block rule. More emphasis is placed on eliminating hits on defenseless players and blows to the head. No player is permitted to initiate contact and target an opponent with the crown of his helmet, and no player is permitted to initiate contact and target a defenseless opponent above the shoulders.

2009 – It becomes mandatory for the conference to review any flagrant personal fouls for targeting defenseless players or using the crown of the helmet. *(Note: Following the rules change in 2009 requiring conferences to further examine these fouls after games, 73 plays were reviewed, resulting in four suspensions from games. In addition, some conferences sent letters of reprimand to coaches and student-athletes following post-game reviews.)*

2010 – Strengthened existing rules regarding targeting and initiating contact and mandated that any injured player be removed from play and cleared by medical personnel before returning to play. Limited blocking schemes on kick plays to no more than two players shoulder to shoulder.

2011-Made the three-man wedge illegal on kickoffs. Also made it illegal for a player to go out of bounds to block an opponent.

2012 – Moved the kickoff location to the 35-yard line from the 30-yard line to encourage more touchbacks and limited kicking team players to be no more than five yards behind the kickoff line. Moved the touchback spot on free kicks to the 25-yard line to further encourage touchbacks. Also protected the receiving team during onside kick plays to allow for a reasonable opportunity to catch the ball. Further clarified and limited blocking below the waist.

Also in 2012, the committee approved a proposal to treat the helmet becoming dislodged (except if by a facemask or foul by the opponent) to be treated like an injury. The player that loses his helmet must be removed from play for at least one play to have the helmet checked and refitted by the team's equipment staff. By rule, a player that loses his helmet must not continue to participate and that player may not be contacted by the opposition.

Another safety rule was put in place to reduce potentially dangerous actions by the team receiving a punt. Shield block formations in use by kicking teams have created efforts to block the punt by jumping over the blockers, causing some receiving team players to land on their head/neck if contacted in the air. This action is now illegal and the receiving team is not allowed to leap over a blocker.

Note: Research for portions of this report comes from former NCAA Secretary-Rules Editor David Nelson's book, The Anatomy of a Game, published in 1994.

Compiled October 18, 2011 (Updated April 11, 2012)

EXHIBIT 5

The NCAA salutes the more than
380,000 student-athletes
participating in **23 sports** at
more than **1,000** member institutions

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FOOTBALL

**2007 RULES AND
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However, certain aspects of play require a higher level of concentration. The resulting vulnerability places players involved in these aspects in an unprotected (defenseless) status.

The following are situations in which defenseless players are susceptible to serious injury:

- The quarterback moving down the line of scrimmage who has handed or pitched the ball to a teammate, and then makes no attempt to participate further in the play;
- The kicker who is in the act of kicking the ball, or who has not had a reasonable length of time to regain his balance after the kick;
- The passer who is in the act of throwing the ball, or who has not had a reasonable length of time to participate in the play again after releasing the ball;
- The pass receiver whose concentration is on the ball;
- The pass receiver who has clearly relaxed when the pass is no longer catchable;
- The kick receiver whose attention is on the downward flight of the ball;
- The kick receiver who has just touched the ball;
- The player who has relaxed once the ball has become dead; and
- The player who is obviously out of the play.

These players are protected by rules that have been in place for many years. It is of the utmost importance that participants, coaches and game officials carefully and diligently observe safety rules.

Intentional helmet-to-helmet contact is never legal, nor is any other blow directed toward an opponent's head. Flagrant offenders shall be disqualified. Additionally, the committee altered Rules 9-1-2-1 and n slightly to encourage officials to penalize head-down contact and leading with the crown of the helmet when tackling.

EQUIPMENT—Football participants have access to the finest available equipment in terms of safety and style. Before each contest, head coaches certify that all players:

- a. Have been informed what equipment is mandatory by rule and what constitutes illegal equipment.

- b. Have been provided the equipment mandated by rule.
- c. Have been instructed to wear, and how to wear, mandatory equipment during the game.
- d. Have been instructed to notify the coaching staff when equipment becomes illegal through play during the game.

Players have an important responsibility in wearing pads properly and adhering to team dress codes while representing their university or college. More importantly, they may avoid serious career-ending injury or life-threatening infections by very conscientiously wearing the equipment available for their collegiate participation.

MEDICAL CONSIDERATIONS WITH EQUIPMENT—In response to a presentation by the National Athletic Trainers Association liaison to the Football Rules Committee, the committee strongly encourages the enforcement of wearing all pads properly and covering the body parts for which they were designed. Not only does properly worn equipment prevent or reduce the severity of injury from direct trauma, but in some cases, equipment prevents skin wounds from occurring to areas that would otherwise be protected by the uniform. The committee recommends that pads and uniforms are worn properly, paying particular care to wear uniform pants that cover the participant's knees, which can be easily abraded when exposed.

Methicillin-resistant staphylococcus aureus (MRSA) is becoming more prevalent in high school, college and professional football players. MRSA is a significant concern because this infection is resistant to commonly used antibiotics. MRSA infections can result in lost playing time and in some cases, players have been hospitalized in order to control the infection. Unfortunately, MRSA infections have also caused the deaths of several football players in the past couple of years.

The usual mode of transmission of MRSA is through body-to-body contact from an infected wound. If abrasions do occur on the knees or any other body part, that open wound then is more susceptible to MRSA transmission and infection. MRSA can also be transmitted from an object (e.g., towel) that has come in contact with the infected area to another person sharing that same object. MRSA bacterium is not transmitted through the air, nor is it found on mud or grass. MRSA cannot live on artificial turf.

EXHIBIT 6

The NCAA salutes the more than
380,000 student-athletes
participating in **23 sports** at
more than **1,000** member institutions

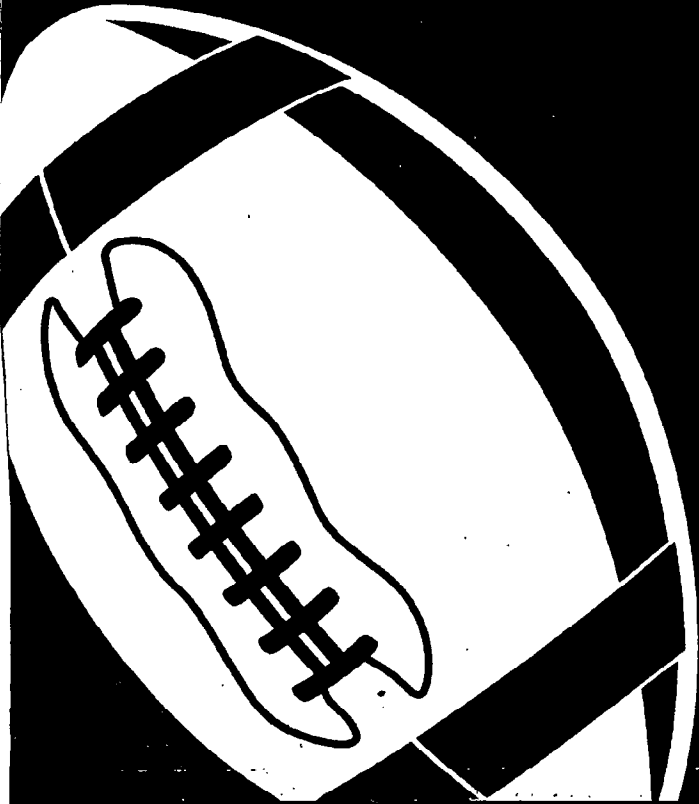
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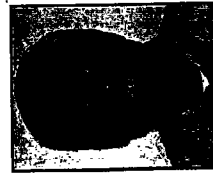
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FR-4

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FR-5

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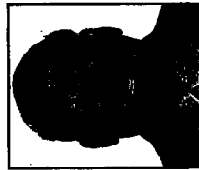
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Note: Two Division III representatives were not named in time for inclusion in the rules book.

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Committee Action for 2008

The numbers and letters in the left column refer to rule, section and article, respectively. Changed or altered items are identified in the rules by a shaded background, unless the change results in the deletion of the entire segment containing the change.

MAJOR RULES CHANGES

1-4-9-d, 11-2-1-d	Referee microphone mandatory in 2010	FR-38, 139
1-4-9-g	Recording opponent's signals prohibited	FR-38
2-2-4, 2-29-2, 3-2-4, 4-1-5	40/25-second play clock system instituted	FR-41, 58, 67, 80
2-3-3	Chop block redefined	FR-43
3-2-2-h (deleted)	15-second play clock eliminated	FR-67
3-2-2-i (deleted)	Clock adjustment on inadvertent whistle	FR-67
3-2-5-a-12	Game clock starts when ball is ready for play after ball carrier goes out of bounds	FR-69
6-2-1	Kickoff out of bounds: option to snap at 40-yard line	FR-88
9-1-2-p	Horse-collar tackle prohibited	FR-118
9-1-2-q	Five-yard facemask foul eliminated	FR-118
9-1-3	Helmet contact/targeting an opponent rule redefined	FR-119
9-1-6	Sideline warning changed to sideline interference foul	FR-121
12-3-1-a	Field goals included in reviewable scoring plays	FR-144
12-3-3-b	If runner ruled down, immediate fumble recovery is reviewable	FR-145
12-3-3-c	If runner ruled out of bounds, immediate score is reviewable	FR-146
12-3-4	Replay official may correct egregious errors	FR-146
12-5-1-b-1	Successful coach's challenge extended to maximum of two per game	FR-147

FR-6

Index to Editorial Changes

The following are editorial changes to the playing rules. Although the editorial changes are not shaded, they are very important in rule interpretation.

EDITORIAL CHANGES

1-2-4-a	3-4-2-a, b-6, 7, Pen.
1-4-6-b	3-4-3
1-4-9-d	3-5-2-c, e, Pen.
2-2-4	4-1-1
2-6-1	4-1-3-a, b, o, q
2-8-2	4-1-4
2-9-1	4-1-5
2-13-1	4-2-4-a
2-15-5-b	5-1-3-c
2-15-9	5-2-3
2-15-10-b	5-2-4-Exc.
2-19-2-b	5-2-7
2-19-3-b	6-1-2
2-27-1	6-1-3-a, b, c, d
2-27-6-c	6-1-8
2-27-7	6-2-1-Pen.
2-29-2	6-3-13
2-30-3-a, b, c	6-4-1-a
3-1-3-g-1, 2, 3	6-5-1-a, b, c, d, e
3-2-1-b	7-1-3-b-Pen.
3-2-2-d, e, f, g	7-1-4-b-Pen.
3-2-5-a, b, c, e	7-2-4-b
3-2-5-a-1, 11, 12, 13	7-3-2-a
3-3-2-a-11, 18, 19	7-3-2-f-Exc.
3-3-3-c	7-3-7-a, c: Exc.
3-3-8-b-1	8-2-1-f

FR-7

FR-118 RULE 9-1/ CONDUCT OF PLAYERS AND OTHERS SUBJECT TO RULES

contact with the passer. However, this does not relieve the defensive player of responsibility for personal fouls as described in Rule 9-1-2-a.) (A.R. 2-30-4-I and II; A.R. 9-1-2-XIV, XXVII and XXVIII; and A.R. 10-2-2-XXXIII, XXXV and XXXVI).

- m. There shall be no chop blocking.
- n. No defensive player, in an attempt to gain an advantage, may step, jump or stand on an opponent. No defensive player who runs forward from beyond the neutral zone and leaps from beyond the neutral zone in an obvious attempt to block a field goal or try may land on any player(s). It is not a foul if the leaping player was aligned in a stationary position within one yard of the line of scrimmage when the ball was snapped.
- o. When a team is in scrimmage kick formation, a defensive player may not initiate contact with the snapper until one second has elapsed after the snap (A.R. 9-1-2-XXII-XXIV).
- p. All players are prohibited from grabbing the inside back collar of the shoulder pads or jersey, or the inside collar of the side of the shoulder pads or jersey, and immediately pulling the runner down. This does not apply to a runner who is inside the tackle box or to a quarterback who is in the pocket.
- q. No player shall twist, turn or pull the face mask or any helmet opening of an opponent. It is not a foul if the face mask or helmet opening is not twisted, turned or pulled. When in question, it is a foul (A.R. 9-1-2-XV).

PENALTY (a-q)—15 yards from the basic spot, or 15 yards from the succeeding spot for dead-ball fouls. Automatic first down for Team B fouls if the first down is not in conflict with other rules (Exception: Penalties for offensive team personal fouls behind the neutral zone are enforced from the previous spot. Safety if the foul occurs behind Team A's goal line) [S7, S24, S34, S38, S39, S40, S41 or S46]. Flagrant offenders shall be disqualified [S47].

For Team A fouls during free or scrimmage kick plays (field goal plays exempted): Enforcement may be at the previous spot or the spot where the subsequent dead ball belongs to Team B (Rules 6-1-8 and 6-3-13).

RULE 9-1/ CONDUCT OF PLAYERS AND OTHERS SUBJECT TO RULES FR-119

Initiating Contact/Targeting an Opponent

ARTICLE 3. a. No player shall initiate contact and target an opponent with the crown (top) of his helmet. When in question, it is a foul.

b. No player shall initiate contact and target a defenseless opponent above the shoulders. When in question, it is a foul. (Refer to Points of Emphasis on FR-9 for a description of "Defenseless Player.")

PENALTY (a-b)—Personal foul. 15 yards from the basic spot, or 15 yards from the succeeding spot for dead-ball fouls. Also, automatic first down for fouls by Team B if not in conflict with other rules. (Exception: Penalties for offensive team personal fouls behind the neutral zone are enforced from the previous spot. Safety if the foul occurs behind Team A's goal line) [S7, S24, S34, S38, S39, S40, S41, S45 or S46]. Flagrant offenders shall be disqualified [S47].

For Team A fouls during free or scrimmage kick plays (field goal plays exempted): Enforcement may be at the previous spot or the spot where the subsequent dead ball belongs to Team B (Rules 6-1-8 and 6-3-13).

Roughing or Running Into Kicker or Holder

ARTICLE 4. a. When it is obvious that a scrimmage kick will be made, no opponent shall run into or rough the kicker or the holder of a place kick (A.R. 5-2-2-I and A.R. 9-1-4-I, III and VI).

1. Roughing is a personal foul that endangers the kicker or holder.
2. Running into the kicker or holder is a foul that occurs when the kicker or holder is displaced from his kicking or holding position but is not roughed (A.R. 9-1-4-II).
3. Incidental contact with a kicker or holder is not a foul.
4. The kicker and holder must be protected from injury, but contact that occurs when or after a scrimmage kick has been touched is not roughing or running into the kicker or holder.
5. The kicker of a scrimmage kick loses protection as a kicker when he has had a reasonable time to regain his balance (A.R. 9-1-4-IV).
6. A defensive player legally blocked into the kicker or holder by a member of the kicking team is not exempt from fouls for running into

EXHIBIT 7

NCAA Injury Surveillance Program.

The purpose of the NCAA Injury Surveillance Program is to collect accurate and reliable data on injury incidence in NCAA championship sports, and analyze, interpret and disseminate these data to assist evidence-based decision making.

NCAA Injury Surveillance data summaries for 15 sports from 1988-89 through 2003-04 are published in the Journal of Athletic Training, Volume 42, Number 2 April-June 2007. Sports include: men's football and spring football, men's soccer, women's soccer, field hockey, women's volleyball, men's basketball, women's basketball, men's ice hockey, women's ice hockey, wrestling, women's gymnastics, baseball, softball, men's lacrosse and women's lacrosse.

Available at: <http://www.nata.org/jat/readers/archives/42.2/i1062-6050-42-2-toc.pdf>

NCAA Funded External Research.

Cantu R and Mueller F. Annual Survey of Football Injury Research and Annual Survey of Catastrophic Football Injuries. National Center for Catastrophic Injury Research. Funded by the NCAA since 1965. Published annually.

Guskiewicz KM and McCrea M. A prospective study on injury assessment, return to play and outcome following concussion in collegiate football players. Awarded in 1999.

Published as:

Guskiewicz KM, McCrea M, Marshall SW, Cantu RC, Randolph C, Barr W, Onate JA, Kelly JP. Cumulative effects associated with recurrent concussion in collegiate football players: The NCAA Concussion Study. Journal of American Medical Association. 290(19): 2549-2555, 2003.

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Collaborative Research Publications with NCAA Injury Surveillance Data.

Shankar PR, Fields SK, Knox CI, Comstock RD. Epidemiology of high School and Collegiate Football Injuries in the United States, 2005-2006. *Am J Sports Med*. 2007; 35(8):1295-1303. PubMed ID: 17369559

Gessel LM, Fields SK, Collins CL, Dick RW, and Comstock RD. Concussions Among High School and College Athletes. *J Athl Train*. 2007; 42(4); 495-503. *Selected as runner-up of the 2007 Journal of Athletic Training Kenneth L. Knight Award for the Outstanding Research Manuscript.* PubMed ID: 18174937

NCAA Sports Medicine Handbook Guideline on Concussion in Athletics.

June 1994

- Content – New Guideline.
- Reference Section:
 1. Cantu RC: When to return to contact sports after cerebral concussion. Sports Medical Digest 10:1-2, 1989.
 2. Gerberich SG, Priest JD, Boen JR, et al.: Concussion incidences and severity in secondary school varsity football players. American Journal of Public Health 73:1370-75, 1983.
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 5. Cantu RC: Guideline for return to contact sports after several concussions. The Physician and Sportsmedicine 14:75-83, 1986.
 6. Colorado Medical Society Report of the Sports Medicine Committee: Guidelines for the management of concussion in sports (Revised). Denver: Colorado Medical Society; 1991.
 7. Cantu RC: Second impact syndrome immediate management. The Physician and Sportsmedicine 20(9):55-8, 1992.
 8. Saunders RI, Harbaugh RE: Second impact and catastrophic contact sports head trauma. Journal of American Medical Association 252(4):538-39, 1984.

July 1997

- Reference Section (new reference **Bolded**):
 1. Albright JP, McAuley E, Martin RK, et al.: Head and neck injuries in college football: an eight-year analysis. American Journal of Sports Medicine 13:147-52, 1985.

2. Alves WM, et al.: Post-concussive symptoms after uncomplicated mild head injury. J. Head Trauma Rehabilitation 8:48-59, 1993.
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13. Quality Standards Subcommittee, American Academy of Neurology: Practice Parameter: The Management of concussion in Sports. Neurology 48:581-85, 1997.
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15. Wilberger JE: Returning a concussion Patient to Activity: Don't Hurry. Your Patient and Fitness 3(3):4-8, 1991.

June 2002

• Reference Section (new reference **Bolded**):

1. Cantu RC: Reflection on Head Injuries in Sport and the Concussion Controversy. Clinical Journal of Sports Medicine 7:83-4, 1997.
2. Cantu RC: Second impact syndrome immediate management. The Physician and Sportsmedicine 20(9):55-8, 1992.
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14. Wojtys EM, Hovda D, Landry G. et al: Concussion in Sports. American Journal of Sports Medicine 27(5):676-687, 1999.

July 2004

- Content - Revisions that were added and highlighted within the guideline included:
 1. Though it is useful to become familiar with these guidelines, it is important to remember that many of these injuries are best treated in an individual fashion (Cantu '01, Vienna Conference, NATA '04).
 2. It is essential that no athlete be allowed to return to participation when any symptoms, including mild headache, persist. It has also been recommended that for any injury that involves significant symptoms, long duration of symptoms, or difficulties with memory function (either retrograde or antegrade) the athlete not be allowed to return to play during the same day of competition.
 3. Once an athlete is completely asymptomatic, the return to play progression should occur in a stepwise fashion with gradual increments in physical exertion and risk of contact.
- Reference Section (new reference **Bolded**):
 1. **Centers for Disease Control and Prevention. Sports-related recurrent brain injuries: United States. MMWR Morb Mortal Wkly Rep 1997; 46:224-227.**
 2. **Collie A, Darby D, Maruff P: Computerized cognitive assessment of athletes with sports related head injury. Br. J Sports Med 35(5):297-302, 2001.**
 3. **Collins MW, Iverson GL, Lovell MR, McKeag DB, Norwig J, Maroon J: On-field predictors of neuropsychological and symptom deficit following sports-related concussion. Clin J Sport Med 2003; 13:222-229.**
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July 2006

- Content reviewed; no changes.
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July 2008

- Content – No significant changes. Added a box to highlight the following online educational tools:
 1. **Heads Up: Concussion Tool Kit.** CDC. Available at www.cdc.gov/ncipc/tbi/coaches_tool_kit.htm .
 2. **Heads Up Video.** NATA. Streaming online at www.nata.org/consumer/headsup.htm .
- References – no changes.

NCAA News Articles intended to inform the NCAA membership about the prevalence, impact and prevention strategies related to concussion. (not an exhaustive list)

Feb 28, 2000. Fall sports injury report reveals continuing trend in concussions.

Oct 9, 2000. Heads up.

Mar 12, 2001. Latest fall sports study spotlights head and player contact injuries.

Apr 1, 2002. Fall sports injury research indicates continued concern with concussions.

Nov 11, 2002. Sports-medicine guidelines minimize risk of injury and heat.

Feb 17, 2003. Survey shows reduced injury rates for several fall sports.

Dec 8, 2003. Study offers guidance on recovery time for concussions.

Apr 12, 2004. Physician holds authority to determine medical fitness.

Apr 26, 2004. Past ISS applications.

Jul 5, 2004. Athletic trainers urge that concussions not be taken lightly.

Sep 13, 2004. Technology provides new tool to judge concussion recovery .

Feb 28, 2005. Forum places psychological focus on mental-health issues.

Mar 14, 2005. Psychology of sport more than performance enhancement.

Aug 15, 2005. Heads-up given to head-down contact.

May 11, 2006. Winter ISS results are available.

Jun 4, 2007. Athletic trainers' ISS work charts future directions.

Football Playing Rules - Head-Down Contact, Spearing Prevention, and Targeting a Defenseless Player (2005; 2008; 2009).

In an effort to enhance student-athlete safety on head (concussion) and neck injuries related to head-down contact and spearing in football, the NCAA Football Rules Committee changed the college football rules in 2005 and 2008 regarding spearing and head-down contact. In 2009, the Football Rules Committee also added new rules to protect defenseless player being struck in the head and allowed NCAA conference offices to review flagrant fouls for enhanced enforcement of the penalties that protect player safety.

In addition to the rule changes, the NCAA focuses on the education of student-athletes, coaches, officials and administrators regarding prevention of head and neck injuries through educational videos and poster distribution. The Football Rules Committee annually produces an official's educational video that includes examples of fouls related to spearing, illegal head-to-head contact and other personal foul situations that can lead to concussions. Also, the NCAA has distributed a DVD of the NATA's Head's Up video to each NCAA football program.

The NCAA has a designated Football Education player safety Web site that is linked to both the NCAA Health and Safety Web site and the Football Playing Rules Web site. For more information, visit our Football Safety Web site. The following posters were developed and disseminated (2005, 2008) to help educate student-athletes, coaches and officials about new rules changes and examples of dangerous hits.

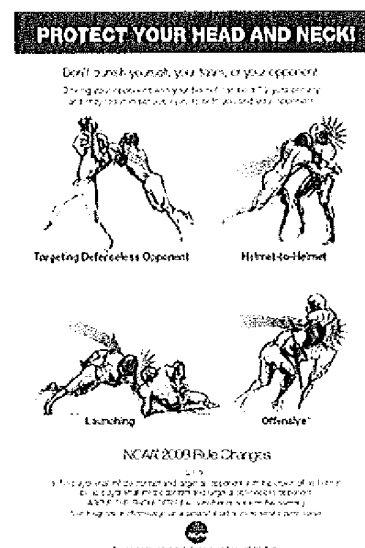
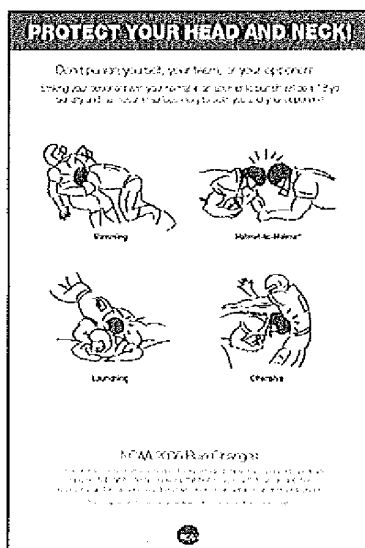


EXHIBIT 8

Acute Effects and Recovery Time Following Concussion in Collegiate Football Players

The NCAA Concussion Study

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STUDIES IN BASIC NEUROSCIENCE have demonstrated that mild traumatic brain injury (concussion) is followed by a complex cascade of ionic, metabolic, and physiological events that can adversely affect cerebral function for several days to weeks.^{1,2} Concussive brain injuries trigger a pathophysiological sequence characterized earliest by an indiscriminate release of excitatory amino acids, massive ionic flux, and a brief period of hyperglycolysis, followed by persistent metabolic instability, mitochondrial dysfunction, diminished cerebral glucose metabolism, reduced cerebral blood flow, and altered neurotransmission. These events culminate in axonal injury and neuronal dysfunction.²⁻⁵ Clinically, concussion eventuates in neurological deficits, cognitive impairment, and somatic symptoms.⁶

Sport-related concussion is now widely recognized as a major public

See also pp 2549 and 2604 and Patient Page.

Context Lack of empirical data on recovery time following sport-related concussion hampers clinical decision making about return to play after injury.

Objective To prospectively measure immediate effects and natural recovery course relating to symptoms, cognitive functioning, and postural stability following sport-related concussion.

Design, Setting, and Participants Prospective cohort study of 1631 football players from 15 US colleges. All players underwent preseason baseline testing on concussion assessment measures in 1999, 2000, and 2001. Ninety-four players with concussion (based on American Academy of Neurology criteria) and 56 noninjured controls underwent assessment of symptoms, cognitive functioning, and postural stability immediately, 3 hours, and 1, 2, 3, 5, 7, and 90 days after injury.

Main Outcome Measures Scores on the Graded Symptom Checklist (GSC), Standardized Assessment of Concussion (SAC), Balance Error Scoring System (BESS), and a neuropsychological test battery.

Results No player with concussion was excluded from participation; 79 players with concussion (84%) completed the protocol through day 90. Players with concussion exhibited more severe symptoms (mean GSC score 20.93 [95% confidence interval {CI}, 15.65-26.21] points higher than that of controls), cognitive impairment (mean SAC score 2.94 [95% CI, 1.50-4.38] points lower than that of controls), and balance problems (mean BESS score 5.81 [95% CI, -0.67 to 12.30] points higher than that of controls) immediately after concussion. On average, symptoms gradually resolved by day 7 (GSC mean difference, 0.33; 95% CI, -1.41 to 2.06), cognitive functioning improved to baseline levels within 5 to 7 days (day 7 SAC mean difference, -0.03; 95% CI, -1.33 to 1.26), and balance deficits dissipated within 3 to 5 days after injury (day 5 BESS mean difference, -0.31; 95% CI, -3.02 to 2.40). Mild impairments in cognitive processing and verbal memory evident on neuropsychological testing 2 days after concussion resolved by day 7. There were no significant differences in symptoms or functional impairments in the concussion and control groups 90 days after concussion.

Conclusions Collegiate football players may require several days for recovery of symptoms, cognitive dysfunction, and postural instability after concussion. Further research is required to determine factors that predict variability in recovery time after concussion. Standardized measurement of postconcussive symptoms, cognitive functioning, and postural stability may enhance clinical management of athletes recovering from concussion.

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www.jama.com

health concern in the United States and worldwide.^{3,7-9} Despite rule changes and advances in protective equipment, the incidence rate of concussion in contact

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and collision sports continues to be relatively high.¹⁰ Overall, concussion is one of the most common injuries in many collegiate sports.^{11,12} Recent data from the National Collegiate Athletic Association (NCAA) Injury Surveillance System reveal that concussion accounted for a significant percentage of total injuries among athletes participating in collegiate ice hockey (12.2%), football (8%), and soccer (4.8%) during the 2002-2003 season.¹¹

Of all sports, football has the highest absolute number of concussions each year because of the large volume of participants at the high school and collegiate levels.^{11,13,14} Recent epidemiological and prospective clinical studies estimate that approximately 3% to 8% of high school and collegiate football players sustain a concussion each season.^{10,13,15-23} More concerning is the trend toward an increasing rate of concussion in collegiate football over the last 7 years.^{11,12}

Despite a growing body of sport-related concussion research, little evidence-based guidance is available on how long it takes for an athlete to recover after concussion and when it is safe to return to competition. A review of the literature reflects estimates of symptom and cognitive recovery ranging anywhere from several hours to several weeks after sport-related concussion.^{15,18,19,21-24,26-36} Computerized and clinical tests have detected postural stability deficits at least 3 days after concussion,³⁷⁻⁴¹ but the course of longer-term recovery in balance functioning has not been extensively studied. It also remains unclear whether all domains affected by concussion (eg, symptoms, cognition, balance) follow the same or different recovery patterns.

Studying the course of recovery of postconcussive abnormalities is a critical step toward determining the interval during which a concussed brain may be most vulnerable to reinjury and establishing evidence-based guidelines for safe return to play by athletes after concussion.² The purpose of this NCAA-sponsored study was to prospectively measure the acute effects of concus-

sion and the continuous time course to recovery following concussion in competitive athletes participating in collegiate football.

METHODS

Participants

A total of 1631 football players from 15 NCAA Division I, II, and III member institutions were enrolled in 1 arm of a larger cohort study of the effects of sport-related concussion in the 1999, 2000, and 2001 seasons. In sum, 2410 player-seasons were analyzed; 779 players were enrolled for more than 1 year of the study. A case series of 94 players who sustained a concussion (5.76% of players; 3.90% of player-seasons) were enrolled in an extensive injury assessment protocol.

A noninjured control was selected from each injured player's team; 56 controls matched to injured players on age, years of education, and baseline performance on concussion assessment measures were administered the identical protocol during the first year of the study.

A master list of potential controls for each player was formed after preseason baseline testing, which facilitated immediate selection of a matched control in the event of a concussion during competition and allowed follow-up testing of control players under the same conditions and retest intervals as injured players. Limited resources did not allow enrollment of controls in years 2 and 3 of the study, which had a minimal effect on matching characteristics for the complete study sample. As a group, control participants were slightly younger and less educated than injured participants, but there were no statistically significant group differences in history of concussion or other neurological disorders (TABLE 1). There also were no significant differences in baseline performance on assessment measures for injured and control participants (Table 1), with the exception of the Trail-Making Test Part B.⁴²⁻⁴⁷

This study was approved by the institutional review boards for protection of human research subjects at the

Table 1. Concussion Group and Control Group Characteristics and Baseline Test Results

Characteristics	Concussion Group (n = 94)*	Control Group (n = 56)*	Mean Difference (95% CI)
Demographics			
Age, y	20.04 (1.36)	19.20 (1.45)	0.84 (0.37 to 1.32)
Academic year (collegiate)	2.78 (1.18)	2.02 (1.23)	0.76 (0.35 to 1.16)
Height, in	73.50 (2.94)	72.75 (3.23)	0.75 (−0.28 to 1.78)
Body weight, kg	105.87 (21.10)	98.33 (20.79)	7.54 (0.47 to 14.62)
Self-reported history			
No. of previous concussions in past 7 y	0.58 (0.78)	0.39 (0.68)	0.19 (−0.07 to 0.44)
Concussion (lifetime), No. (%)	41 (43.2)	17 (30.4)	12.8 (0.0 to 28.9)
ADHD, No. (%)	2 (2.30)	1 (1.80)	0.5 (0.0 to 59.2)
Learning disability, No. (%)	2 (2.30)	1 (1.80)	0.5 (0.0 to 58.8)
Baseline test results†			
GSC total score ¹⁷	1.95 (4.94)	0.99 (3.26)	0.96 (−0.49 to 2.43)
SAC total score ⁴²	27.40 (2.17)	27.43 (1.77)	−0.03 (−0.68 to 0.61)
BESS total score ⁴¹	11.80 (8.09)	12.73 (7.57)	0.84 (−3.47 to 1.80)
HVLT Immediate Memory ⁴³	25.03 (4.36)	25.31 (4.05)	−0.28 (−1.70 to 1.13)
HVLT Delayed Recall ⁴³	8.61 (2.18)	9.15 (2.13)	−0.54 (−1.27 to 0.18)
HVLT Recognition ⁴³	22.60 (1.97)	22.94 (1.26)	−0.34 (−0.92 to 0.24)
Trail-Making Test Part B ⁴⁴	64.42 (22.22)	57.30 (18.69)	7.12 (0.12 to 14.11)
SDMT ⁴⁵	55.56 (11.61)	58.90 (12.19)	−3.34 (−7.29 to 0.60)
Stroop Color-Word Test ⁴⁶	47.21 (9.23)	48.66 (9.75)	−1.45 (−4.59 to 1.70)
COWAT ⁴⁷	40.46 (12.36)	37.15 (10.61)	3.31 (−0.61 to 7.23)

Abbreviations: ADHD, attention-deficit/hyperactivity disorder; BESS, Balance Error Scoring System; CI, confidence interval; COWAT, Controlled Oral Word Association Test; GSC, Graded Symptom Checklist; HVLT, Hopkins Verbal Learning Test; SAC, Standardized Assessment of Concussion; SDMT, Symbol Digit Modalities Test.

*Data are expressed as mean (SD) unless otherwise specified.
†See Table 2 for explanation of total possible range of scores.

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host institutions of the principal investigators. All participants granted written informed consent prior to enrollment in the study.

Study Design

All participants underwent a preseason baseline evaluation on a battery of concussion assessment measures prior to their first year of participation in the study. An extensive health history questionnaire was also administered at baseline to generate a database of demographic information, concussion history, and preexisting neurological and other medical conditions.

Injured players were identified and enrolled in the study protocol by a team physician or certified athletic trainer present on the sideline during an athletic contest or practice. *Concussion* was defined as an injury resulting from a blow to the head causing an alteration in mental status and 1 or more of the following symptoms prescribed by the American Academy of Neurology Guideline for Management of Sports Concussion: headache, nausea, vomiting, dizziness/balance problems, fatigue, difficulty sleeping, drowsiness, sensitivity to light or noise, blurred vision, memory difficulty, and difficulty

concentrating.^{48,49} Criteria contributing to the identification of a player with a concussion also included the observed mechanism of injury (eg, acceleration or rotational forces applied to the head), symptoms reported or signs exhibited by the player, and reports by medical staff or other witnesses regarding the condition of the injured player. Loss of consciousness, posttraumatic amnesia (eg, inability to recall exiting the field, aspects of the examination), and retrograde amnesia (eg, inability to recall aspects of the play, events prior to injury, score of the game) were documented immediately after injury.

All players identified by the team physician or certified athletic trainer as having a concussion according to the study's injury definition and criteria were tested with a Graded Symptom Checklist (GSC),¹⁷ the Standardized Assessment of Concussion (SAC),⁴² and the Balance Error Scoring System (BESS)⁴¹ on the sideline immediately following injury. Follow-up testing on these measures was then conducted 2 to 3 hours after injury (postgame/postpractice) and again on postinjury days 1, 2, 3, 5, 7, and 90. A brief neuropsychological test battery was administered to assess neurocognitive functioning at baseline and on

postinjury days 2, 7, and 90. Because research data were collected in the context of direct clinical care delivery, examiners were not blinded to the players' group assignments (injured vs control) at the time of evaluation. Assessments were conducted by certified athletic trainers who were trained by the researchers on administration and scoring of all outcome measures used in the study.

Main Outcome Measures

TABLE 2 summarizes the measures used in this study to assess postconcussive symptoms, cognitive functioning, and postural stability. All of these measures have been used extensively in head injury research, including studies on the effects of sport-related concussion. Several reports have demonstrated the reliability and accuracy of the GSC,³⁶ SAC,^{20,22} BESS,³⁹⁻⁴¹ and components of the neuropsychological test battery¹⁹ in correctly classifying persons with and without concussion. Clinicians also recorded information on injury mechanism, severity, management, recovery, and return to play.

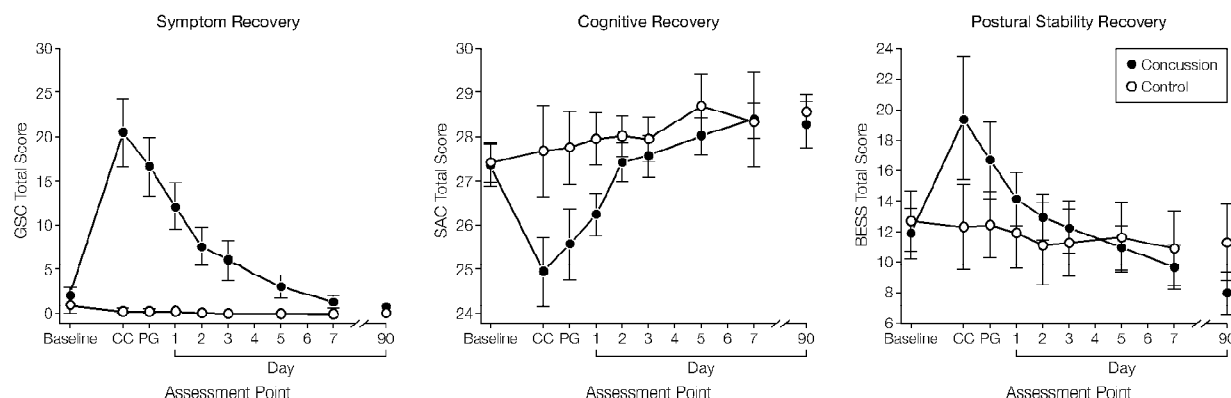
Statistical Analysis

We initially graphed the recovery curves for symptoms, cognition, and balance

Table 2. Main Outcome Measure Characteristics

Measure	Functional Domain	Description	Score Range	Time Needed to Administer
Graded Symptom Checklist ¹⁷	Postconcussive symptoms	Self-rated presence and severity of 17 symptoms (eg, headache, dizziness)	Likert scale of 0 (no symptoms) to 6 (severe) per item; total score range, 0-102; higher score indicates more severe symptoms	2-3 min
Standardized Assessment of Concussion ^{42*}	Cognitive functioning (orientation, immediate and delayed memory, concentration) Neurological screening (strength, sensation, coordination)	Brief neurocognitive assessment and neurological screening; documentation of loss of consciousness, posttraumatic amnesia, retrograde amnesia	Total score range, 0-30; lower score indicates more severe cognitive impairment	5 min
Balance Error Scoring System ⁴¹	Postural stability	Noninstrumented, clinical assessment of postural stability in double-leg, single-leg, and tandem stances on firm and foam surfaces	No defined range; test score equals total number of errors committed by test taker; higher score indicates more severe postural instability	5 min
Neuropsychological test battery ^{43-47*}	Cognitive functioning (attention, concentration, processing speed, mental flexibility, anterograde memory, verbal fluency)	Hopkins Verbal Learning Test (memory) ⁴³ ; Trail-Making Test Part B (cognitive processing) ⁴⁴ ; Symbol Digit Modalities Test (cognitive processing) ⁴⁵ ; Stroop Color-Word Test (mental flexibility) ⁴⁶ ; Controlled Oral Word Association Test (verbal fluency) ⁴⁷	Total score range based on individual measures; lower score indicates more severe impairment except for Trail-Making Test (total time to complete)	25 min

*Alternate forms were used to minimize practice effects from repeat testing on the Standardized Assessment of Concussion and the neuropsychological test battery.

Figure. Symptom, Cognitive, and Postural Stability Recovery in Concussion and Control Participants

Higher scores on the Graded Symptom Checklist (GSC) indicate more severe symptoms; lower scores on the Standardized Assessment of Concussion (SAC) indicate poorer cognitive performance; and higher scores on the Balance Error Scoring System (BESS) indicate poorer postural stability. Error bars indicate 95% confidence intervals. CC indicates time of concussion; PG, postgame/postpractice. On the BESS, multiple imputation was used to estimate means and 95% confidence intervals for control participants for the CC and PG assessments.

across all time points, with 95% confidence intervals. We also fit multivariate regression models to further explore recovery effects and control for potential confounders. Because the data involved longitudinal observations on a set of injured athletes, we fit generalized estimating equation models, with an identity link function, assumed Gaussian residual variation, and independent working correlation matrix.^{50,51} We used this model to estimate the mean differences in test scores on each of the main outcome measures between injured players and uninjured controls at each time point. In all analyses, we controlled for baseline scores on the respective tests, history of concussion, and institution. In addition, we controlled for academic year and any self-reported history of a learning disability or attention-deficit/hyperactivity disorder in cognitive and neuropsychological models and for body mass index and height in balance models.

The data collection protocol was time-sensitive; because of clinical workload and logistical constraints, testing could not always be performed at the specified time points, particularly at the time of concussion and at the postgame/postpractice time point. Across all time points for all participants, 86% of data were complete. To examine the poten-

tial effect of missing data on the modeling results, we compared the baseline scores for the missing and nonmissing player data at every time point for all outcomes. The baseline scores did not differ between players with missing and nonmissing data, suggesting that the data were missing at random, as described in Diggle et al.⁵² We also estimated the missing data using a single imputation model, based on time and player status (injured vs control) and obtained essentially identical results on reanalysis of the imputed data. The sole exception was for data for controls on the BESS balance test at the time of concussion and at the postgame/postpractice time point; baseline scores differed between missing and nonmissing data for this measure at these 2 time points, creating bias in the observed change-from-baseline effect. To overcome this problem, we used multiple imputation to estimate the control means and confidence intervals only for these 2 time points. No imputation was used in any of the generalized estimating equation regression models, since these controlled for baseline test scores. Data were analyzed with SPSS software, version 11.0 (SPSS Inc, Chicago, Ill).

RESULTS

Ninety-four players who had a concussion during a football practice (56.8% of

concussions studied) or game were studied. Most injuries were classified as either grade 1 or grade 2 concussions according to the Cantu⁵³ (98.6%), Colorado⁵⁴ (93.3%), and American Academy of Neurology⁴⁸ (93.2%) sports concussion grading scales based on our post hoc review of injury characteristics. A small number of injured players experienced loss of consciousness (6.4%; median duration, 30 seconds) or exhibited posttraumatic amnesia (19.1%; median duration, 90 minutes) or retrograde amnesia (7.4%; median duration, 120 minutes). There was no loss of consciousness, posttraumatic amnesia, or retrograde amnesia associated with 77.8% of injuries. Eleven players exhibited delayed onset of symptoms after concussion (mean [SD] delay, 14.4 [15.5] minutes) and therefore were not evaluated immediately after concussion. No player who sustained a concussion refused to participate or was excluded from the study protocol, but information on unidentified or unreported concussions was not available. Four players had more than 1 concussion during a season. Seventy-nine players with concussion (84%) completed the assessment protocol through the day 90 assessment.

The recovery curves shown in the FIGURE depict the symptoms, cognitive functioning, and postural stabil-

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ity of injured players vs controls across all assessment points. The shape of these curves illustrates a pattern of more severe symptoms, cognitive impairment, and balance problems (postural instability) immediately after injury, followed by a gradual improvement over the first several postinjury days.

After controlling for potential confounders in the multivariate regression models, the recovery patterns depicted in the Figure persist. TABLE 3 provides adjusted mean differences and 95% confidence intervals for the concussion vs

control groups, controlling for covariates, on measures of symptoms, cognitive functioning, and balance at each postinjury assessment point. Increased symptoms were very evident during the acute phase immediately following concussion, and strong group differences in symptom scores persisted through postinjury day 5. On average, symptoms in players with concussion resolved by day 7. Ninety-one percent of players with concussion returned to personal baseline symptom levels within 7 days after concussion.

Cognitive impairment in players with concussion was most severe at the time of injury and persisted through postinjury day 2. Milder cognitive deficits appeared to persist up to postinjury day 5 but, on average, resolved by day 7. Balance deficits were most pronounced during the first 24 hours after concussion but appeared to resolve by day 5, slightly earlier than symptoms and cognitive effects resolved.

After plotting raw means for the concussion and control groups on the neuropsychological tests, we fit multivariate regression models to further explore these effects and to control for variations in baseline scores on each test and other potential confounders. TABLE 4 presents raw group means and 95% confidence intervals for the concussion and control groups, and TABLE 5 provides adjusted mean differences and 95% confidence intervals, controlling for covariates, on the neuropsychological test battery at postinjury days 2, 7, and 90. Players with concussion exhibited mild impairment in cognitive processing speed and verbal fluency 2 days and 7 days after concussion. There was also suggestion of a subtle decline from baseline in players with concussion on measures of verbal memory and mental flexibility on postinjury day 2. On day 90, players with concussion performed less well than controls on a

Table 3. Model-Based Adjusted Estimates of Mean Differences Between Concussion and Control Groups in Symptoms, Cognitive Functioning, and Postural Stability*

Assessment Point	Mean Difference (95% Confidence Interval)		
	Symptoms (GSC)	Cognitive Functioning (SAC)	Postural Stability (BESS)
Time of concussion	20.93 (15.65 to 26.21)	-2.94 (-4.38 to -1.50)	5.81 (-0.67 to 12.30)
Postgame/postpractice	16.97 (12.61 to 21.33)	-2.15 (-3.26 to -1.04)	5.66 (1.27 to 10.06)
Postinjury day			
1	11.53 (8.37 to 14.69)	-1.59 (-2.43 to -0.75)	2.72 (-0.14 to 5.57)
2	6.88 (4.17 to 9.59)	-0.72 (-1.51 to 0.08)	2.33 (-0.30 to 4.95)
3	5.08 (2.27 to 7.88)	-0.46 (-1.25 to 0.32)	1.46 (-1.22 to 4.14)
5	2.02 (-0.03 to 4.06)	-0.52 (-1.28 to 0.25)	-0.31 (-3.02 to 2.40)
7	0.33 (-1.41 to 2.06)	-0.03 (-1.33 to 1.25)	-0.55 (-3.19 to 2.09)
90	0.62 (-0.90 to 2.14)	-0.51 (-1.41 to 0.39)	-2.45 (-5.09 to 0.18)

Abbreviations: BESS, Balance Error Scoring System; GSC, Graded Symptom Checklist; SAC, Standardized Assessment of Concussion.

*Estimated mean differences for the GSC are adjusted for baseline GSC score and number of previous concussions; SAC estimates are adjusted for baseline SAC score, academic year, number of previous concussions, history of learning disability and attention-deficit/hyperactivity disorder, and institution; BESS estimates are adjusted for baseline BESS score, height, body weight, number of previous concussions, and institution. Positive mean differences indicate more severe symptoms reported on the GSC and poorer performance on the BESS in the concussion group relative to baseline; negative mean differences indicate poorer performance in the concussion group on the SAC relative to baseline.

Table 4. Neuropsychological Test Battery Results in Concussion and Control Groups at Postinjury Days 2, 7, and 90*

Measure	Mean Score (95% Confidence Interval)					
	Day 2		Day 7		Day 90	
	Concussion Group	Control Group	Concussion Group	Control Group	Concussion Group	Control Group
Memory						
HVLT Immediate Memory ⁴³	24.41 (23.49-25.34)	25.29 (24.02-26.55)	25.63 (24.74-26.53)	25.85 (24.53-27.17)	26.25 (25.27-27.23)	27.61 (26.15-29.08)
HVLT Delayed Recall ⁴³	8.07 (7.52-8.61)	8.76 (8.04-9.47)	8.50 (7.94-9.06)	10.22 (8.37-12.06)	9.03 (8.49-9.56)	9.68 (8.97-10.39)
HVLT Recognition ⁴³	22.18 (21.80-22.57)	22.84 (22.39-23.28)	22.50 (22.18-22.82)	22.65 (21.91-23.39)	23.19 (22.92-23.46)	23.29 (22.94-23.64)
Cognitive processing						
Trail-Making Test Part B ⁴⁴	59.99 (55.65-64.32)	53.31 (48.62-58.00)	53.72 (49.44-58.00)	44.87 (40.51-49.24)	51.59 (47.62-55.57)	45.44 (41.10-49.78)
SDMT ⁴⁵	54.78 (52.50-57.06)	60.67 (57.09-64.24)	54.84 (52.69-57.00)	59.20 (55.93-62.46)	59.87 (57.42-62.31)	61.42 (57.30-65.54)
Mental flexibility						
Stroop Color-Word Test ⁴⁶	48.20 (45.83-50.56)	51.43 (48.73-54.13)	53.47 (51.16-55.78)	55.39 (52.16-58.62)	53.97 (51.65-56.30)	54.32 (50.27-58.37)
Verbal fluency						
COWAT ⁴⁷	39.99 (37.75-42.23)	40.29 (37.34-43.23)	41.57 (39.26-43.88)	42.63 (39.56-45.70)	42.65 (40.29-45.01)	44.94 (41.26-48.61)

Abbreviations: COWAT, Controlled Oral Word Association Test; HVLT, Hopkins Verbal Learning Test; SDMT, Symbol Digit Modalities Test.

*Higher scores on the Trail Making Test indicate slower performance; lower scores indicate poorer performance on all other measures.

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single measure of verbal fluency, but there were no lingering impairments in the concussion group on the other outcome measures.

COMMENT

The findings from this 3-year study indicate that collegiate football players require several days to recover after sport-related concussion. Injured athletes exhibited the most severe symptoms, cognitive dysfunction, and balance problems during the acute phase immediately after concussion, followed by a gradual course of recovery over 5 to 7 days. On average, cognitive functioning returned to normal within 5 to 7 days after concussion, but athletes required a full 7 days for postconcussive symptoms to completely return to baseline and control levels. Players with concussion exhibited a mild decline from baseline and control levels on neuropsychological measures of cognitive processing speed, new learning and memory, and mental flexibility 2 days after concussion; these measures returned to baseline levels by postinjury day 7. Balance testing also returned to normal within 3 to 5 days after concussion. There was no evidence of lingering symptoms, cognitive impairment, or balance problems in the concussion group at postinjury day 90. It is important to note that the rate of recovery after concussion varied from player to player in our study. These findings suggest that clinicians cannot necessarily expect that all collegiate football players will reach a complete recovery within 7 days after a concussion, as approximately 10% of players in this study required more than a week for symptoms to fully resolve. Furthermore, not all players demonstrated the same pattern of recovery in symptoms, cognition, and balance.

Concussion Threshold and Natural Recovery Course

While there is no single biological marker of concussion, data from this study demonstrate a threshold of acute impairments signifying the mildest form of traumatic brain injury. There was

Table 5. Model-based Adjusted Estimates of Mean Differences Between Concussion and Control Groups on the Neuropsychological Test Battery*

Measure	Mean Difference (95% Confidence Interval)		
	Day 2	Day 7	Day 90
Memory			
HVLT Immediate Memory ⁴³	-1.02 (-2.84 to 0.81)	-0.57 (-2.38 to 1.23)	-1.22 (-3.32 to 0.88)
HVLT Delayed Recall ⁴³	-0.59 (-1.62 to 0.44)	-1.63 (-3.62 to 0.35)	-0.02 (-1.04 to 1.00)
HVLT Recognition ⁴³	-0.50 (-1.24 to 0.24)	0.03 (-0.97 to 1.03)	0.16 (-0.58 to 0.91)
Cognitive processing			
Trail-Making Test Part B ⁴⁴	2.25 (-5.38 to 9.88)	4.10 (-3.53 to 11.73)	3.51 (-5.41 to 12.63)
SDMT ⁴⁵	-4.99 (-9.88 to -0.11)	-4.03 (-9.29 to 1.24)	0.25 (-4.94 to 5.43)
Mental flexibility			
Stroop Color-Word Test ⁴⁶	-2.00 (-5.66 to 1.66)	-0.98 (-4.56 to 2.60)	-0.80 (-4.54 to 2.95)
Verbal fluency			
COWAT ⁴⁷	-3.65 (-6.78 to -0.52)	-4.57 (-8.02 to -1.11)	-5.31 (-9.11 to -1.52)

Abbreviations: COWAT, Controlled Oral Word Association Test; HVLT, Hopkins Verbal Learning Test; SDMT, Symbol Digit Modalities Test.

*Estimates are adjusted for baseline scores on each respective measure, academic year, number of previous concussions, history of learning disability/attention-deficit/hyperactivity disorder, and institution.

clear and consistent evidence of cerebral dysfunction in cases of concussion without classic indicators of mild traumatic brain injury, such as loss of consciousness and posttraumatic amnesia. These data support a movement in the neurosciences toward a revised definition of concussion that emphasizes an *alteration* (as opposed to a loss) of consciousness or mental status as the hallmark of concussion and stresses the potential seriousness of all head injuries, even what has historically been referred to as a simple “ding.” Sports medicine professionals especially should be aware that the diagnosis of concussion does not require loss of consciousness, significant amnesia, or other focal neurological abnormalities associated with more severe head injury.

Animal studies have demonstrated a cascade of physiological events that adversely affect cerebral functioning for a period of days to weeks after a concussion.^{55,56} The pattern of impairment exhibited by injured players in our study of collegiate athletes provides indirect evidence of the same phenomena in humans through detailed testing of cognitive functioning, postural stability, and subjective symptoms at serial time points following concussion. Injured athletes exhibited significantly increased symptoms and functional impairments during the acute postconcussive phase that gradually re-

solved along the same neurophysiological course described in animal concussion models.² This appears to be the first prospective human study to include preinjury cognitive and motor baseline testing and to plot continuous recovery curves from a point immediately after concussion to several months after injury in a sizable group of persons with concussion.

Our findings contribute to the existing literature on the acute effects of and recovery from sport-related concussion. Interpretation of recovery data from earlier clinical studies has been hampered by varied definitions of concussion, limited follow-up assessment of injured players widely distributed over time, small sample sizes, lack of control groups, and failure to address all domains of postconcussive recovery (eg, neurological, symptomatic, cognitive, postural stability). Few studies have measured symptoms and functional impairments within minutes of injury to establish an early benchmark against which to track recovery.^{16,18,23,27} Several studies have reported that a portion of injured participants still exhibited cognitive impairment or postconcussive symptoms at the final assessment point used in the study, precluding any more precise determination of a recovery end point.^{26-28,33-36} It has also been unclear from earlier studies whether all do-

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mains affected by concussion follow similar or different recovery courses.

Implications for Sports Concussion Management

Despite recent advances in the science of sports concussion and attempts to reach expert consensus, there remains significant debate over which factors (eg, unconsciousness, amnesia, symptom duration) are most critical in determining concussion severity, expected recovery course, and how long a player should be withheld from competition after injury. Currently, sports concussion grading systems drive injury management strategies, but grading concussion severity is a difficult matter, even with the benefit of extensive standardized assessment data collected within minutes after injury. Grading injury severity assists in acute medical management of concussion but may not independently predict course of recovery or the best plan for safe return to play after injury. Therefore, perhaps less emphasis should be placed on grading concussion, with more emphasis on a standardized approach to measuring recovery in determining when it is safe for an athlete to return to competition. Based on our findings, the use of standardized assessment tools may assist clinicians in determining an athlete's level of recovery and readiness for safe return to competition after a concussion. Further study is required, however, to determine whether the use of these instruments significantly enhances injury management strategies and ultimately reduces the risks associated with sport-related concussion.

Injury surveillance studies have reported that the average length of time players are withheld from competition after concussion in high school and collegiate football ranges from 3 to 8 days, depending on the grade of injury severity.^{10,13} We previously found that the largest percentage of collegiate football players were withheld from competition for an average of less than 5 days after concussion.²⁵ The disparity between our data on average recovery time and concurrent reports on

time withheld from play after concussion raises concerns based on the common assumption that resuming competition before reaching full recovery may increase the risks of recurrent injury, cumulative impairment, or even catastrophic outcome. Additional data are required to more precisely determine the risks associated with further injury exposure before reaching a complete recovery after concussion.

Study Limitations

Several limitations to our study warrant consideration. First, most of the concussions studied were of mild to moderate severity. Further study is under way to explore how acute injury severity affects the trajectory and time course of recovery. It is also possible that some players who may have had a concussion during the study were not identified. Whether as part of a research study or in general clinical practice, it has long been thought that the rate of concussion is likely underestimated because of the reluctance of some athletes to report injury or their inability to recognize the signs of injury.⁵⁷ Our study is not exempt from this form of potential selection bias in the sample of injured players studied. These data are also subject to the reliability and validity of the main outcome measures we used, which are supported by earlier studies on the accuracy of these measures in detecting the effects of concussion in athletes.^{19,20,22,36,39-41} Obtaining a preinjury baseline for all players on these measures provides the most sensitive means to detect reliable change in performance attributable to concussion and track postinjury recovery.²⁰ Still, our main outcome measures provide indirect evidence of concussion through assessment of symptoms and functional deficits, not cerebral activity directly, and are prone to some degree of error common to all forms of clinical measurement.

While we have attempted to control for potential confounding of postinjury test results by noninjury factors (eg, education, baseline test performance, test practice effects, history of concussion, examiner), we also recognize that further study is required to conclude to what

extent injury (eg, unconsciousness, amnesia, previous history of concussion) and noninjury factors may affect recovery time for athletes at all competitive levels. Because our study sample was limited to collegiate athletes, it is unclear if these data can be applied to the expected course of recovery by younger (eg, high school) or older (eg, professional) athletes with a concussion. Concurrent research, however, illustrates a similar pattern of postconcussive recovery in symptoms, cognition, and balance by high school football players.⁵⁸ We are also investigating to what extent these data can be generalized to recovery after concussion from other sources of trauma (eg, motor vehicle crashes).

CONCLUSION

Objective data from this study illustrate the natural course of recovery by collegiate football players over a period of several days following concussion and contribute to a shift in the direction of evidence-based guidelines for determining the best time course for young athletes to return to play after injury. These findings also set the stage for randomized research trials to determine the most effective methods for clinical management of athletes recovering from concussion. Further study is necessary to elucidate factors that predict recovery across all functional domains affected by concussion and to determine the recommended duration of a symptom-free waiting period to minimize the risks associated with recurrent concussion or other adverse outcomes resulting from sport-related head injuries.

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Study concept and design: McCrea, Guskiewicz, Randolph, Kelly.

Acquisition of data: McCrea, Guskiewicz, Marshall, Onate.

Analysis and interpretation of data: McCrea, Guskiewicz, Marshall, Barr, Randolph, Cantu, Yang, Kelly.

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Statistical expertise: McCrea, Guskiewicz, Marshall, Barr, Randolph, Yang.

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EXHIBIT 9

Cumulative Effects Associated With Recurrent Concussion in Collegiate Football Players

The NCAA Concussion Study

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THE HIGH INCIDENCE OF CEREBRAL concussion in contact sports is well documented.¹⁻⁸

According to the Centers for Disease Control and Prevention, approximately 300 000 sport-related concussions occur annually in the United States,⁹ and the likelihood of serious sequelae may increase with repeated head injury.¹⁰ Recent publications addressing the negative consequences of recurrent concussion in sports raise questions regarding the potential long-term sequelae associated with this injury,¹¹⁻¹³ and recurrent concussion has forced several collegiate and professional athletes to retire early from their respective sports.

Studies from the 1970s report annual concussion incidence rates in high school football to be as high as 15% to 20% of all players in a season,^{5,8} while annual incidence estimates of 10% were reported in collegiate football during the late 1980s.¹⁴ More recently, lower in-

See also pp 2556 and 2604 and Patient Page.

Context Approximately 300 000 sport-related concussions occur annually in the United States, and the likelihood of serious sequelae may increase with repeated head injury.

Objective To estimate the incidence of concussion and time to recovery after concussion in collegiate football players.

Design, Setting, and Participants Prospective cohort study of 2905 football players from 25 US colleges were tested at preseason baseline in 1999, 2000, and 2001 on a variety of measures and followed up prospectively to ascertain concussion occurrence. Players injured with a concussion were monitored until their concussion symptoms resolved and were followed up for repeat concussions until completion of their collegiate football career or until the end of the 2001 football season.

Main Outcome Measures Incidence of concussion and repeat concussion; type and duration of symptoms and course of recovery among players who were injured with a concussion during the seasons.

Results During follow-up of 4251 player-seasons, 184 players (6.3%) had a concussion, and 12 (6.5%) of these players had a repeat concussion within the same season. There was an association between reported number of previous concussions and likelihood of incident concussion. Players reporting a history of 3 or more previous concussions were 3.0 (95% confidence interval, 1.6-5.6) times more likely to have an incident concussion than players with no concussion history. Headache was the most commonly reported symptom at the time of injury (85.2%), and mean overall symptom duration was 82 hours. Slowed recovery was associated with a history of multiple previous concussions (30.0% of those with ≥ 3 previous concussions had symptoms lasting >1 week compared with 14.6% of those with 1 previous concussion). Of the 12 incident within-season repeat concussions, 11 (91.7%) occurred within 10 days of the first injury, and 9 (75.0%) occurred within 7 days of the first injury.

Conclusions Our study suggests that players with a history of previous concussions are more likely to have future concussive injuries than those with no history; 1 in 15 players with a concussion may have additional concussions in the same playing season; and previous concussions may be associated with slower recovery of neurological function.

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idence rates of 3.6% and 5.6% have been reported at the high school level.^{7,12} Recent studies involving collegiate players have also reported lower injury rates (4.8%¹² and 4.0%¹⁵) compared with those in the 1980s.

Comparisons between concussion studies are complicated by the lack of universal agreement on the definition of *concussion* and the various levels of severity (ie, grades). An early definition frequently cited is that of a “clinical syndrome characterized by immediate and transient post-traumatic impairment of neural functions, such as alteration of consciousness, disturbance of vision, equilibrium, etc due to biomechanical forces.”¹⁶ The hallmarks of concussion are confusion and amnesia, with headache being the most commonly reported symptom. The injury is most often produced by acceleration/deceleration of the freely moving head.¹⁷⁻¹⁹

Guidelines for return to play following a concussion have been published by several authors²⁰⁻²⁵; however, none has emerged as a criterion standard or been followed with any consistency by sports medicine clinicians. The majority of these guidelines were developed on the premise that athletes may have a reduced threshold for subsequent concussions after an initial concussion. Although this theory has yet to be confirmed in a human model, animal research has identified acute metabolic dysfunction following cerebral concussion that might explain the increased neuronal vulnerability that can exist for several days following injury.²⁶⁻³⁰

The purposes of this study were to examine the association between history of previous concussions and likelihood of experiencing recurrent concussions and to compare time to recovery following concussion between athletes with a history of previous concussion compared with those without a history of previous concussion.

METHODS

We conducted a prospective cohort study of incident and recurrent concussions in a defined group of colle-

giate athletes. To enroll schools in the study, a letter of inquiry was sent to certified athletic trainers at 36 National Collegiate Athletic Association (NCAA) schools. Certified athletic trainers from 29 schools collected and submitted data, resulting in an initial school response rate of 81%. For the purpose of the final analyses, 4 schools were eliminated because of incomplete data, resulting in an overall school response rate of 69%.

A total of 2905 collegiate football players were enrolled in the study from 19 Division I, 3 Division II, and 3 Division III schools, accumulating 4251 player-seasons of follow-up. Data were collected during 3 football seasons (1999, 2000, and 2001), and players who sustained incident concussions were followed up for repeat concussions until completion of their collegiate football career or until the end of the 2001 season.

Preseason baseline measures were collected at the time of enrollment using a Graded Symptom Checklist (GSC) and an extensive health questionnaire that generated a database of demographic information, concussion history, and preexisting neurological or other medical conditions. *Concussion* was defined as an injury resulting from a blow to the head that caused an alteration in mental status and 1 or more of the following symptoms: headache, nausea, vomiting, dizziness/balance problems, fatigue, difficulty sleeping, drowsiness, sensitivity to light or noise, blurred vision, memory difficulty, and difficulty concentrating.

The GSC was used to quantify the severity of several complaints commonly reported following concussion. Participants rated the presence and severity of 17 symptoms. Each symptom was rated on a 7-point Likert scale ranging from 0 (not present) to 6 (severe). Symptom severity ratings were summed to provide an overall index of symptom severity, as was the total number of symptoms experienced at each postinjury assessment. Although the GSC may be limited by its subjectivity, it has been used in earlier sports concussion studies.³¹⁻³⁴ In addition, we

asked the certified athletic trainer evaluating the concussion to complete a series of questions describing the player's course of recovery after concussion. This concussion index served as a record of critical information relevant to injury mechanism, severity, management, duration of symptoms, length of recovery, and return to play.

Procedures

In the event of a concussive injury, the certified athletic trainer administered the GSC at the following assessment points: at the time of injury, 3 hours after injury, and at postinjury days 1, 2, 3, 5, and 7. Athletic trainers completed the concussion index over the course of the player's recovery, tracking the player until he was asymptomatic. Additionally, 17 of the participating schools were randomly assigned to an “assessment group” and were asked to use a brief battery of concussion assessment tools.³⁵ Members of the research team retrospectively graded concussion severity using the information regarding symptom duration on the concussion index. This study was approved by the institutional review boards for protection of human research subjects at the host institutions of the principal investigators. All participants granted written informed consent prior to enrollment in the study.

Participation in Sport

Collection of detailed data on participation at the level of the individual athlete (“exposure” data) was beyond the resources of this study. We therefore estimated athlete exposures in the playing population based on data from the NCAA Sports Sponsorship and Participation Report³⁶ and the NCAA Injury Surveillance System.¹⁵ We multiplied the number of athlete-seasons of follow-up in our study by the average number of exposures per athlete (estimated from NCAA data), stratified by division, to produce the estimated athlete exposures for games and contact practices. We did not include noncontact practices in our denominator since these rarely result in concussion.¹²

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Statistical Methods

For analyses dealing with the case series of injured players, χ^2 tests of association were used to compare proportions in tables; the Fisher exact test was used when 80% of expected counts were less than 5. To estimate the risk of incident concussion based on playing position and number of previous concussions, we used rate ratios and 95% confidence intervals (CIs) based on standard Poisson assumptions.³⁷ We controlled for potential confounders using a multivariate generalized Poisson regression model for the rate of concussion.³⁸⁻⁴⁰ This model was implemented using a generalized-estimating-equations approach to account for repeated concussions in the same athlete and clustering of athletes by school.^{41,42} Statistical analyses were conducted using SAS software, version 8.2 (SAS Institute Inc, Cary, NC). The level of significance was set a priori at $P < .05$ for χ^2 tests of association.

RESULTS**Descriptive Analysis**

The 2905 college football players were followed up for a total of 4251 player-seasons. Our study resulted in 196 reported concussions among 184 players (12 concussions were prospective repeat concussions). Of the 196 incident concussions, 94 were included in the assessment group. The overall rate of incident concussion was 0.81 per 1000 athlete exposures (95% CI, 0.70-0.93). More than half of the total concussions ($n = 101$ [51.5%]) occurred in practices, but the rate of concussive injuries in games was markedly higher than the rate in practices (rate ratio, 8.15; 95% CI, 6.16-10.78). The rate in Division III was also higher than the rates in Divisions I and II (TABLE 1).

When the concussions were retrospectively graded for severity on the Cantu Evidence-Based Grading Scale,²¹ most concussions (118/169 [69.8%]) were classified as a grade 2, while only a small percentage were either grade 1 (25/169 [14.8%]) or grade 3 (26/169 [15.4%]) concussions. Insufficient data

on symptom duration, memory loss, and loss of consciousness (LOC) for 27 of the concussions prevented us from retrospectively grading all injuries. A relatively small segment of players with concussions experienced LOC (12/191 [6.3%]; mean duration, 53 seconds; median duration, 30 seconds) or exhibited signs of amnesia (46/191 [24.1%]; mean duration, 104 minutes; median duration, 30 minutes). Amnesia included anterograde amnesia alone or anterograde amnesia plus retrograde amnesia. There was no LOC or amnesia associated with the majority of concussions (137/191 [71.7%]). Offensive linemen, linebackers, and defensive backs (20.9%, 16.3%, and 16.3%

of all players with concussions, respectively) were the most frequent to sustain concussions. The injury rate per 1000 athlete exposures suggests that there is a weak association between position played and likelihood of concussion, since these 3 positions yielded the highest injury rates among the 10 playing positions (TABLE 2). The most common mechanisms by which concussion occurred were collision with an opponent (74/196 [37.8%]), tackling an opponent (42/196 [21.4%]), being tackled by an opponent (33/196 [16.8%]), and blocking an opponent (29/196 [14.8%]).

The most common signs and symptoms reported on the GSC by players

Table 1. Estimated Athlete Exposures and Rate of Incident Concussion per 1000 Athlete Exposures by Level of Competition

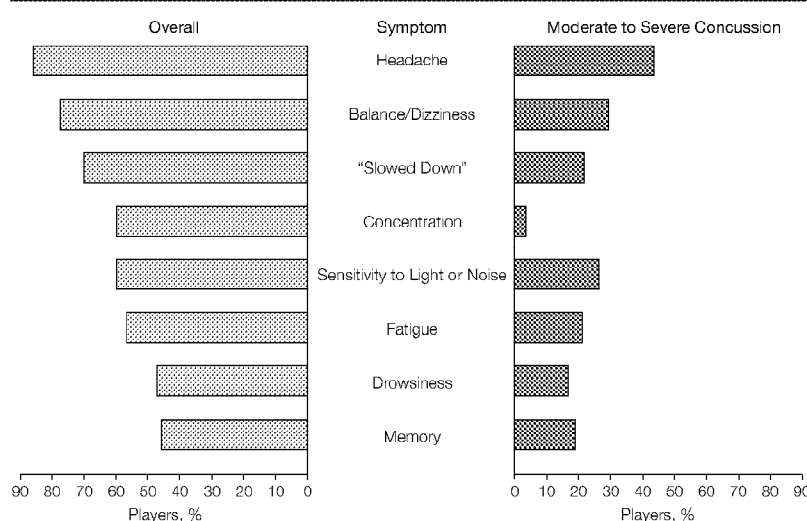
	No. of Incident Concussions	Estimated No. of Athlete Exposures	Concussion Rate per 1000 Athlete Exposures (95% Confidence Interval)
Division I			
Game	68	18 354	3.70 (2.82-4.59)
Practice	63	161 888	0.39 (0.29-0.49)
Total	131	180 242	0.73 (0.60-0.85)
Division II			
Game	12	3740	3.21 (1.39-5.02)
Practice	14	31 693	0.44 (0.21-0.67)
Total	26	35 433	0.73 (0.45-1.02)
Division III			
Game	15	2850	5.26 (2.60-7.93)
Practice	24	22 426	1.07 (0.64-1.50)
Total	39	25 276	1.54 (1.06-2.03)
Overall			
Game	95	24 944	3.81 (3.04-4.57)
Practice	101	216 007	0.47 (0.38-0.56)
Total	196	240 951	0.81 (0.70-0.93)

Table 2. Incident Concussions and Rate per 1000 Athletic Exposures by Player Position

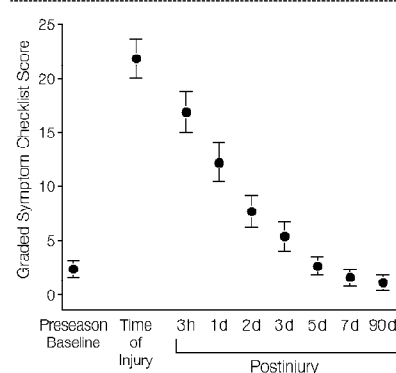
Position	No. of Incident Concussions (% of Overall)	No. of Player-Seasons	Estimated No. of Athlete Exposures	Concussion Rate per 1000 Athlete Exposures (95% Confidence Interval)
Quarterback	11 (5.6)	235	13 320	0.83 (0.34-1.31)
Running back	18 (9.2)	447	25 336	0.71 (0.38-1.04)
Receiver	15 (7.7)	493	27 944	0.54 (0.27-0.81)
Tight end	10 (5.1)	227	12 867	0.78 (0.30-1.26)
Offensive lineman	41 (20.9)	760	43 078	0.95 (0.66-1.24)
Defensive lineman	28 (14.3)	647	36 673	0.76 (0.48-1.05)
Linebacker	32 (16.3)	570	32 308	0.99 (0.65-1.33)
Defensive back	32 (16.3)	643	36 446	0.88 (0.57-1.18)
Special teams	9 (4.6)	205	11 620	0.77 (0.27-1.28)
Total	196 (100)*	4227	239 592	0.78 (0.67-0.89)

*Percentages do not add to exactly 100% because of rounding.

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Figure 1. Percentage of Players With Concussion (n=196) Reporting Symptoms at Time of Injury

Moderate/severe symptoms defined as scores of 3 to 5 on the Graded Symptom Checklist.

Figure 2. Mean Reported Graded Symptom Checklist Total Scores for Players With Concussion (n=196) Across Repeated Assessments

Error bars indicate 95% confidence intervals.

with concussion are presented in FIGURE 1 and mean GSC total scores are shown in FIGURE 2. Headache (167/196 [85.2%]) was the most commonly reported symptom at the time of injury, followed by dizziness/balance difficulties (151/196 [77.0%]) and feeling cognitively "slowed down" (136/196 [69.4%]). Among the 167 players experiencing a headache at the time of their concussion, 149 (89.2%) still re-

ported having a headache 3 hours after injury, 110 (65.9%) 24 hours after injury, 41 (24.5%) at postinjury day 5, and 23 (13.8%) at postinjury day 7. On average, overall symptom duration was about 3.5 days (mean duration, 82 hours; median duration, 48 hours), and 87.8% (172/196) achieved full symptom resolution within 1 week after injury.

There was an apparent association between returning to play on the same day of injury and experiencing delayed onset of symptoms (ie, symptoms not present immediately following the concussion but present 3 hours after injury) ($\chi^2 = 7.83$; $P = .005$). Thirty-three percent (10/30) of players with concussion who returned to play on the same day of injury experienced delayed onset of symptoms compared with only 12.6% (20/158) of those who did not return to play on the same day of injury. Analysis of headache scores alone found that 9 players (4.6%) with concussion reported a delayed headache, which was not present at the time of injury but was present 3 hours after injury. However, this association could be spurious since players whose symptoms did not resolve within 3 hours were more likely to

be withheld from play and who, by definition, did not develop delayed-onset symptoms.

Recurrent Concussion

The likelihood of sustaining an incident concussion was associated with a history of self-reported previous concussion (TABLE 3). Sixty-six (35.1%) of 188 injuries were recorded as "repeat injuries" from within the last 7 years; football players with a history of 3 or more previous concussions were 3 times more likely to sustain an incident concussion than those with no concussion history; and similar elevations in risk, although less marked, were observed in players with 2 previous concussions and those with 1 previous concussion. This "dose-response" relationship between number of previous concussions and risk of incident concussion persisted after controlling for potential confounders, such as division of play, playing position, years of participation in organized football, academic year in school, and body mass index, using multivariate Poisson regression (Table 3). Data collectors reported that 12 (6.5%) of the 184 players with concussion had an incident repeat concussion within the same season. Of the in-season repeat concussions, 11 (91.7%) of 12 occurred within 10 days of the first injury, and 9 (75.0%) of 12 occurred within 7 days of the first injury.

Course of recovery was classified by the certified athletic trainers as either rapid (symptoms lasting <1 day), gradual (symptoms lasting 1-7 days), or prolonged (symptoms lasting >7 days). Athletes with a history of multiple concussions experienced a longer recovery ($P = .03$ by Fisher exact test) (TABLE 4). There was no association between concussion history (0, 1, 2, or ≥ 3 concussions) and the presence of either LOC ($P = .66$ by Fisher exact test) or amnesia ($P = .31$ by Fisher exact test) with subsequent concussions. However, presence of LOC and amnesia tended to be associated with a slower recovery (TABLE 5). Ten players with concussion (5.4%) were disqualified

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Table 3. Association Between Concussion History and Risk of Incident Concussion

No. of Previous Concussions	No. (%) of Incident Concussions*	No. of Player-Seasons	Estimated No. of Athlete Exposures	Concussion Rate (95% CI) per 1000 Athlete Exposures	Rate Ratio (95% CI)	Multivariate-Adjusted Rate Ratio (95% CI)†
0	122 (3.7)	3265	185 060	0.66 (0.54-0.78)	1.0	1.0
1	41 (5.4)	756	42 850	0.96 (0.66-1.25)	1.5 (1.0-2.1)	1.4 (1.0-2.1)
2	15 (10.5)	143	8105	1.85 (0.91-2.79)	2.8 (1.6-4.8)	2.5 (1.5-4.1)
≥3	10 (12.7)	79	4478	2.23 (0.85-3.62)	3.4 (1.8-6.5)	3.0 (1.6-5.6)

Abbreviation: CI, confidence interval.

*Data are expressed as No. (%) of players from each concussion group ($\chi^2 = 30.11$; $P < .001$).†Adjusted for body mass index (by quartile), academic year (freshman, sophomore, junior, or senior/graduate), years of organized football experience (≤ 7 , 8-10, or ≥ 11), division (I, II, or III), and playing position (listed in Table 2).

from participation for the remainder of the season following their concussive injury, 8 (80%) of whom experienced a prolonged duration of symptoms (mean, 14 days) and 8 (80%) of whom had a history of recurrent injury.

COMMENT

Our results suggest that college football players with a history of concussion are likely to have future concussive injuries. We observed an increase in the likelihood of recurrent injury with each successive previous injury. Given our finding of a 3-fold greater risk of future concussions following 3 concussions vs no concussions, athletes with a high cumulative history should be more informed about the increased risk of repeat concussions when continuing to play contact sports such as football. The multivariate-adjusted rate ratio in our study nearly doubled between the group with 1 previous concussion (rate ratio, 1.4) and the group with 2 previous concussions (rate ratio, 2.5), suggesting that as few as 1 previous concussion may present a cumulative effect. Additionally, we found that 1 in 15 players with concussion may have additional concussions in the same playing season and that these reinjuries typically take place in a short window of time (7-10 days) following the first concussion.

A 1995-1997 study of high school and collegiate football players reported a 14.7% within-season recurrent injury rate.¹² The lower rate of within-season recurrent concussion (6.5%) found in our study can perhaps be explained by increased awareness of the dangers surrounding cere-

Table 4. Length of Symptom Recovery in Players With Concussion by History of Concussion*

Length of Symptom Recovery (d)	No. of Previous Concussions†			
	0 (n = 122)	1 (n = 41)	2 (n = 15)	≥3 (n = 10)
Rapid (<1)	37 (30.3)	16 (39.0)	5 (33.3)	0
Gradual (1-7)	76 (62.3)	19 (46.3)	7 (46.7)	7 (70.0)
Prolonged (>7)	9 (7.4)	6 (14.6)	3 (20.0)	3 (30.0)

*Data are expressed as No. (%) of players with concussion.

†P = .03 by Fisher exact test.

Table 5. Length of Symptom Recovery in Players With Concussion by Loss of Consciousness and Posttraumatic Amnesia*

Length of Symptom Recovery (d)	Loss of Consciousness†		Amnesia‡	
	Yes	No	Yes	No
Rapid (<1)	1 (9.1)	52 (29.9)	9 (20.9)	44 (30.8)
Gradual (1-7)	7 (63.6)	105 (60.3)	26 (60.5)	87 (60.8)
Prolonged (>7)	3 (27.3)	7 (9.8)	8 (18.6)	12 (8.4)

*Data are expressed as No. (%) of players with concussion.

†P = .09 by Fisher exact test.

‡P = .13 by Fisher exact test.

bral concussion in recent years, which is believed to have led to more conservative return-to-play decision making by athletic trainers and team physicians. Fewer players with concussions returned to play on the same day of injury in the current study, which could have attributed to this lower overall injury rate. Further findings suggest that college football players are much more likely to sustain a concussion during a game than during a practice (rate ratio, 8.15). Given that concussions most often result from sudden acceleration/deceleration of the freely moving head,¹⁷⁻¹⁹ this finding can most likely be attributed to the intensity and speed at which the games are played relative to average practice conditions. Linebackers, offensive linemen, and defensive backs may also have an increased risk of concussive injury, which is consis-

tent with previous findings and most often explained by the increased size and speed of players in these positions.^{2,12}

Additionally, our study suggests that a history of concussion is associated with prolonged recovery following subsequent concussions (Table 4). The increased risk of future injury, as well as slower recovery, may be indicative of increased neuronal vulnerability following recurrent concussive injuries. Animal studies have described an acute neurometabolic cascade involving accelerated glycolysis and increased lactate production immediately following concussion.^{28-30,43-45} The increased lactate is believed to leave neurons more vulnerable to secondary ischemic injury and has been considered a possible predisposition to repeat injury.^{26,27} Later steps in this physiologic

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cascade involve increased intracellular calcium, mitochondrial dysfunction, impaired oxidative metabolism, decreased glycolysis, axonal disconnection, neurotransmitter disturbances, and delayed cell death. Decreased cerebral blood flow has been reported to last approximately 10 days following concussive injuries in animal models,²⁶ which is consistent with our finding of an apparent 7- to 10-day period of increased susceptibility to recurrent injury. The disrupted cellular metabolism that has been described by researchers as leaving the cells more vulnerable to further injury^{26-28,46} should be studied further in human models.

Although previous authors have reported that 85% to 90% of all concussions are mild (grade 1),^{2,4,7,22,47} we found a higher incidence of moderate (69%) and severe (15%) concussions in our study based on the most recent Cantu Evidence-Based Grading Scale. This scale classifies more of the concussions as grades 2 and 3 (range, 1-3, with 3 most severe), primarily on the factor of symptom duration. For example, 26 cases were classified as grade 3 because symptoms persisted beyond 7 days after injury, whereas other grading scales classify concussions as severe based solely on the presence of LOC or prolonged amnesia.

According to our findings, concussions manifest with varying signs and symptoms, as well as severity and duration of these symptoms. The signs and symptoms present at the time of injury observed in our study are consistent with those reported by other authors.^{2,12,14,20,31,34,47-52} Most concussion grading scales are weighted heavily on the presence of LOC and/or amnesia at the time of injury and for a brief period thereafter. However, previous studies have reported that the majority of concussions involve neither LOC nor amnesia.^{7,12,47} Significant debate still exists surrounding the predictive value of LOC and amnesia for recovery and outcome.^{21,53} These are only acute markers of injury severity and, as evidenced by our findings, do not clearly

predict the duration and intensity of symptoms in players with concussion. Only 6.3% of the observed concussions in our study resulted in LOC, and only 24.1% involved amnesia. We did not find LOC or amnesia to be associated with delayed recovery but did find that an increased number of previous concussions was associated with delayed recovery beyond 1 week after injury. Future studies should prospectively investigate the validity of the various concussion grading scales and clinical management of concussion with respect to outcome.

This study presents information on a relatively large series of concussions in a defined cohort of contact-sport athletes. The data were collected by certified athletic trainers who were present at all football practices and games. However, our data have limitations. It is possible that some players who may have had a concussion during the study period were not identified. Researchers and clinicians have long thought that the rate of concussion is likely underestimated because of the reluctance of some athletes to report or their inability to recognize the signs and symptoms of concussion.⁵⁴ Although our study was not exempt from this form of potential selection bias, we attempted to minimize this bias by studying only teams with certified athletic trainers, who were trained in recognizing the signs and symptoms of a concussion and were present at all practices and games.

Furthermore, as described in the "Methods" section, we lacked individual-level data on athlete exposures and had to estimate this information from external sources. This could have some repercussions for our findings. For example, a potential source of bias in our observed association between history of previous concussion and incident concussions is that exposure time (time spent playing football) might differ between those who have a positive history of concussion and those with no history of concussion. To explore this potential bias more fully, we obtained detailed data on total number of

games and contact practices for a sample of 120 football players from 2 colleges and found that the mean number of contact exposures tended to be lower in those with a positive concussion history. The mean number of athlete exposures in practices and games for players with 0 previous concussions was 69.3 (95% CI, 66.3-72.3), significantly different from the mean number of athlete exposures for players with 1 previous concussion (59.3; 95% CI, 53.2-65.4) or 2 or more previous concussions (55.3; 95% CI, 39.4-71.3) ($F_{2,117}=7.18$; $P<.001$), suggesting that our data may have understated the strength of this association. The observed trend was consistent across all levels of player status (starter, reserve, and predominately practice player).

CONCLUSION

These results illustrate that a history of previous concussions may be associated with an increased risk of future concussive injuries and that these previous concussions may be associated with slower recovery of neurological function following subsequent concussions. Within a given season, there may be a 7- to 10-day window of increased susceptibility for recurrent concussive injury, but this finding should be further studied in a larger sample of athletes with recurrent in-season concussions.

Author Contributions: As principal investigator, Dr Guskiewicz had full access to all of the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis.

Study concept and design: Guskiewicz, McCrea, Randolph, Kelly.

Acquisition of data: Guskiewicz, McCrea, Marshall, Onate.

Analysis and interpretation of data: Guskiewicz, Marshall, Cantu, Randolph, Barr, Kelly.

Drafting of the manuscript: Guskiewicz, McCrea, Marshall, Randolph, Barr, Kelly.

Critical revision of the manuscript for important intellectual content: Guskiewicz, McCrea, Marshall, Cantu, Randolph, Barr, Onate, Kelly.

Statistical expertise: Guskiewicz, Marshall, Randolph.

Obtained funding: Guskiewicz, McCrea.

Administrative, technical, or material support: Guskiewicz, McCrea, Randolph, Onate, Kelly.

Study supervision: Guskiewicz, McCrea, Kelly.
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EXHIBIT 10

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NCAA funds study examining the long-term effects of concussions in sports



By Brian Burnsed
NCAA.org

The NCAA has awarded a pair of leading concussion researchers a \$399,999 grant, which will help subsidize a potentially groundbreaking study examining the long-term effects of head injuries in college athletes.



Kevin Guskiewicz, director of North Carolina's Matthew Gfeller Sport-Related Traumatic Brain Injury Research Center and Michael McCrea, director of brain injury research at Medical College of Wisconsin, are spearheading the research.

While numerous studies – including work by Guskiewicz and McCrea – have examined the effects of concussions immediately after they occur, a dearth of academic literature pertains to the chronic neurological effects of concussions and repetitive, sub-concussive head impacts, particularly among NCAA athletes. The public and athletes alike have grown increasingly concerned about the long-term impact of head injuries, but the void in understanding has been filled mostly by conjecture and anecdotal evidence, the researchers suggest. Guskiewicz and McCrea, however, seek to fill it with hard data by conducting examinations with former student-athletes involved in previous studies.

“Clinical research has advanced our understanding of sport-related concussion and has driven evidence-based approaches to *acute* injury management and return to play guidelines,” the researchers wrote in their study proposal. “Recent concerns, however, focus on potential *chronic* neurologic effects of concussion and repetitive head impacts in contact sports... This study represents the most comprehensive investigation of long-range neurologic health outcomes in former NCAA athletes.”

For this study, the researchers will draw upon the pool of NCAA student-athletes who took part in a previous NCAA-funded study. In 1999, Guskiewicz and McCrea embarked on “The NCAA Concussion Study”, which examined football players from 29 NCAA Division I, II and III schools. When findings were published in 2003, no other study had examined a larger pool of concussed athletes. Thanks to that study, Guskiewicz and McCrea already have a slew of data at their disposal, which they’ll be able to use alongside the new data they collect from many of the same athletes. That ability to track college athletes’ health over an extended window will be immensely beneficial, Guskiewicz and McCrea wrote, given that it will allow them to identify clear trends over time.

“They are the right investigators for this,” said NCAA Chief Medical Officer Brian Hainline. “They’re working with solid baseline data for which comparisons can be made, and they make proposals for cutting-edge neuroimaging biomarkers that will help shape the future of concussion diagnosis and management.”

Through the first 18 months of the study, the researchers will conduct a health survey of 2,000 former student-athletes who took part in the first NCAA Concussion Study as well as other studies Guskiewicz and McCrea carried out through the late 1990s and early last decade. Based on their responses, that field will be whittled down to 120 respondents with varying levels of concussion exposure across an array of contact sports. That group will take part in physical evaluations, such as balance assessments, psychological surveys, genetic testing and neuroimaging studies, among others, at either researcher’s campus. Guskiewicz and McCrea believe that tracking these former student-athletes over such a lengthy period of time – they plan to study this group for years to come – and comparing them to data collected from retired NFL players will shed new light on the long-term effects, or lack thereof, of both concussions and repeated head impacts in college athletics.

“Our study will advance the science on the chronic effects of concussion and head impact exposure, while protecting the health of athletes and the future of NCAA sports,” Guskiewicz and McCrea wrote.

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EXHIBIT 11

Injury Surveillance System results available for fall 2004 sports

February 18, 2005
The NCAA News

The NCAA Injury Surveillance System (ISS) enters its 21st year of data collection and the first using a Web-based data collection format. The new data collection system provides a more efficient and accurate process that will improve the safety informed decision-making process for individual schools, conferences and national sport rules committees. The system monitors injuries in 17 different sports, including five in the fall: football, women's soccer, men's soccer, women's volleyball and field hockey.

The survey, conducted as part of the ISS, provides a baseline of injury data from a national sampling. Researchers should be cautious when comparing ISS results with injury data from other studies. No common definition of injury, measure of severity or evaluation of exposure exists in athletics-injury literature. The information in the summary must be evaluated under the definitions and methodology outlined for the ISS.

The ISS was developed in 1982 to provide current and reliable data on injury trends in intercollegiate athletics. Injury data are collected yearly from a representative sample of member institutions and the resulting data summaries are reviewed by the NCAA Committee on Competitive Safeguards and Medical Aspects of Sports. The committee's goal continues to be to reduce injury rates through suggested changes in rules, protective equipment or coaching techniques, based on ISS data.

Additional information on the report is available from the ISS staff at the NCAA national office or at www.ncaa.org/iss.

Following are summaries of results in each sport:

Football

Practice (5.9) and game (39.1) injury rates per 1,000 athlete-exposures were slightly higher than the 21-year averages for the sport. The game concussion rate of 3.96 (one concussion every four games for a team of 60 participants) reflects a consistent increasing trend in the sport over the past several years. Football game-injury rates equate to two injuries per game for a team of 60 participants. The thigh, knee, and ankle were the most prevalent body parts injured in practice, accounting for 42 percent of all reported injuries, while the knee, ankle and shoulder accounted for 51 percent of all reported game injuries. Sprains, strains and contusions were the top three types of injuries. Fifty-two percent of all game injuries required restricted or missed participation for seven days or more, while 6 percent of game injuries required surgery of some type. Injury rate for practice scrimmages was three times higher than for regular practice.

Women's soccer

Women's soccer showed practice (6.3) and game (16.1) injury rates that are slightly higher than the 19-year averages for the sport. Assuming 15 game participants, the game rate equates to one injury every four games in the sport. The thigh, knee and ankle were the top three body parts injured during practices, accounting for 52 percent of the reported injuries, while the knee, ankle, and head/face accounted for 59 percent of the reported injuries in game competition. Fourteen percent of all reported game injuries were concussions. Strains, sprains and contusions were the top types of injuries in practice and sprains, contusions and concussions were the top three types in games. Forty-five percent of women's soccer game injuries restricted participation for seven days or more, while 9 percent resulted in surgery. Consistent with patterns that have been monitored since 1989, women soccer players had a 2.9 times

higher risk overall of anterior cruciate ligament injury in games than men soccer participants. Fifty-six percent of game injuries resulted from player contact; 7 percent were associated with a slide tackle

Men's soccer

Men's soccer had a practice injury rate of 5.7 and a game injury rate of 19.1. The practice rate was slightly higher and the game rate slightly lower than the 19-year averages for the sport. Assuming 15 game participants, the game rate equates to one injury every three games in the sport. The thigh, knee and ankle were the most common body parts injured in practice, accounting for 52 percent of reported injuries; the same three were the top body parts injured in games, accounting for 48 percent of the injuries. Strains, sprains and contusions were the top three types of injuries in both practices and games. Concussions accounted for 6.3 percent of game injuries. Forty-one percent of game injuries resulted in time loss of seven days or more, while 5.2 percent resulted in surgery. In games, player contact accounted for 60 percent of all injuries; 9 percent of game injuries were associated with attempting or receiving a slide tackle.

Women's volleyball

Women's volleyball is one of the few sports monitored that has game injury rates that are similar to practice. The 2004-05 data show similar practice (4.9) and game (4.7) rates that are about the same as the 21-year averages for the sport. Assuming a team of eight players, the game injury rate equates to one injury every 27 games in the sport. The shoulder, ankle and knee were the most common body parts injured in practice, accounting for 44 percent of reported injuries, while the same three body parts accounted for 53 percent of the reported injuries in competitions. Sprains and strains were the top two types of injuries. Forty percent of game injuries resulted in time loss of seven days or more, while 6 percent resulted in surgery. Noncontact was the primary mechanism of injury in practice (59 percent) and game (52 percent). Other contact (primarily with the ball) accounted for 21 percent of practice and 25 percent of game injuries. The front line positions accounted for 71 percent of game injuries.

Field hockey

In field hockey, practice (8.3) injury rates and game (11.5) injury rates were higher than the 19-year averages for the sport. Assuming 15 game participants, the game rate equates to one injury every 6 games in the sport. The thigh, knee and ankle were the top three body parts injured in practice, accounting for 47 percent of all practice injuries, while the knee, thigh and hand were the top body parts injured in games, accounting for 50 percent of the game-related injuries. Concussions accounted for 7 percent of all game injuries. Eighteen percent of all game injuries could be defined as above the neck (including face, nose, eyes, etc.). Strains, sprains and contusions were the top three types of injuries for both game and practice. Twenty-seven percent of game injuries resulted in time loss of seven days or more, while 2.4 percent resulted in surgery. Contact with the ball, particularly elevated, or stick accounted for 19 percent of all practice and 40 percent of all game injuries. Player contact accounted for 6 percent of practice injuries and 18 percent of game injuries, while 60 percent of practice injuries and 30 percent of game injuries were noncontact injuries.

EXHIBIT 12



National Collegiate Athletic Association

NCAA News Archive - 2009

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NCAA panel to review concussion issues

Competitive-safeguards committee to assess recent developments, research

Dec 10, 2009 9:50:18 AM

The NCAA News



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Q&A with NCAA competitive-safeguards committee chair

Timeline: Three decades of change

More research: NCAA-related concussion studies and articles

The NCAA has been at the forefront of implementing rules to help protect players from concussions and further discussions will take place starting this weekend.

Here is an update on the NCAA's management of this complex issue:

- Over the past five years, the NCAA Football Rules Committee has made changes to help protect players against concussions. These changes include bans on all helmet-first tackles, hits against defenseless players and blows to the head.
- The NCAA Committee on Competitive Safeguards and Medical Aspects of Sports is meeting December 13-15 and will discuss the topic. Discussion will include the most recent developments in brain injury and concussion research.
- Since 1976 the NCAA has prohibited using the head as a weapon in football and other contact sports. For the past 15 years, the NCAA has provided institutions with specific recommendations regarding concussion management in its Sports Medicine Handbook.

Protecting the players

Starting with the 2005-06 season, rules were strengthened to ban all helmet-first tackles. For the 2007-08 season, the NCAA placed a greater emphasis on eliminating hits on defenseless players and blows to the head.

The Football Rules Committee has distributed several video examples to officials, coaches and conference administrators to educate and clarify what types of plays should result in penalty and ejection.

Upcoming discussions

The NCAA Committee on Competitive Safeguards and Medical Aspects of Sports, which will meet in Indianapolis on December 13-15, is made up of collegiate medical personnel, athletics administrators, and student-athlete representatives.

The 20-member committee can make recommendations on medically related rules and issues. The committee also is responsible for the guidelines in the Sports Medicine Handbook.

Concussion guidelines

The NCAA Sports Medicine Handbook instructs member institutions on how to recognize the signs and symptoms of concussions and how to manage treatment and prevention of head injuries. The handbook provides specific "return-to-play" guidelines regarding concussions.

The NCAA concussion guidelines read, in part: "It is essential that no athlete be allowed to return to participation when any symptoms, including mild headache, persist. It has also been recommended that for any injury that involves significant symptoms, long duration of symptoms or difficulties with memory function, not be allowed to return to play during the same day of competition. It has been further demonstrated that retrograde amnesia, post-traumatic amnesia, and the duration of confusion and mental status changes longer than five minutes may be more sensitive indicators of injury severity. Once an athlete is completely asymptomatic, the return-to-play progression should occur in a stepwise fashion with gradual increments in physical exertion and risk of contact."

Making changes

The NCAA is a membership-run association. All rules must be approved by committees composed of personnel from member institutions and conferences (and, in some cases, other members with special expertise). Committees, such as the competitive-safeguards panel, can recommend rule changes to the appropriate committees for consideration.

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EXHIBIT 13

The NCAA News News & Features

The NCAA News – August 30, 2004

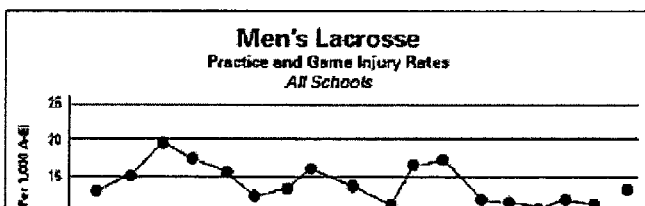
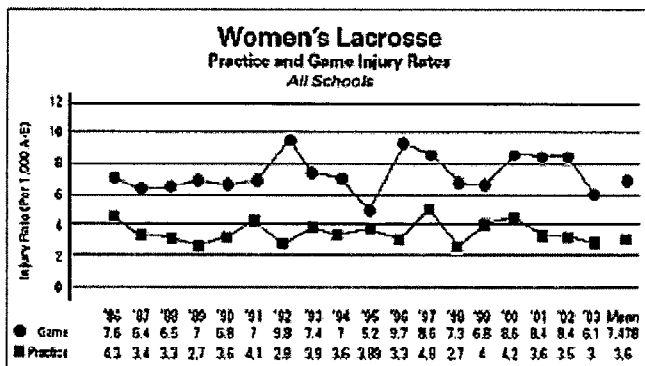
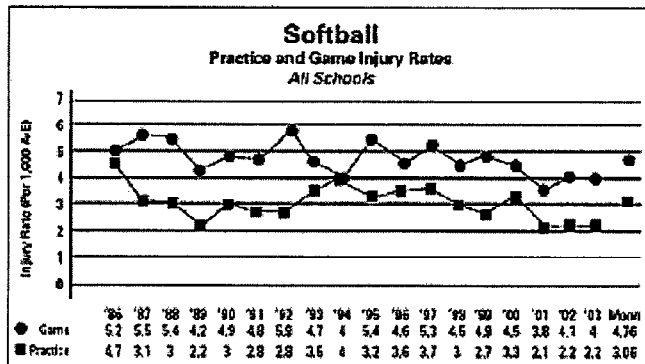
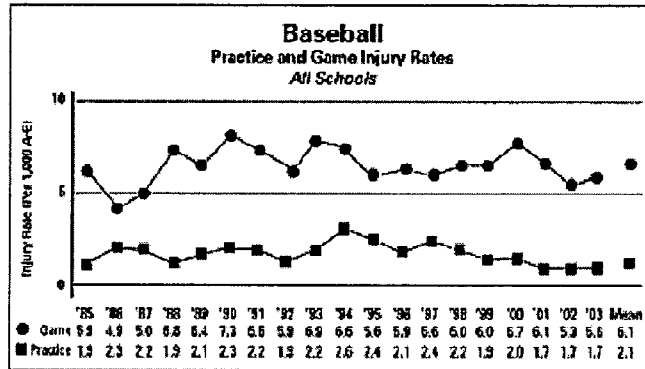
Spring-sports injury research demonstrates reduced rates

A study on injuries in spring sports has yielded encouraging news for the third year in a row. Generally lower practice- and game-injury rates in all spring sports, including spring football, highlight the spring 2004 NCAA Injury Surveillance System (ISS) reports.

The system, in its 21st year, monitors injuries in 15 different sports, including five in the spring season: spring football, baseball, softball, and men's and women's lacrosse.

The ISS was developed in 1982 to provide current and reliable data on injury trends in intercollegiate athletics. Injury data are collected yearly from a representative sample of member institutions, and the resulting data summaries are reviewed by the NCAA Committee on Competitive Safeguards and Medical Aspects of Sports. The committee's goal continues to be to reduce injury rates through suggested changes in rules, protective equipment or coaching techniques, based on ISS data.

The ISS provides a baseline of injury data from a national sampling. Researchers should be cautious when comparing ISS results with injury data from other studies. No common definition of



injury, measure of severity or evaluation of exposure exists in athletics-injury literature. The information in the summary must be evaluated under the definitions and methodology outlined for the ISS.

Spring football

Practice-injury rates per 1,000 athlete-exposures (7.7) were found to be lower than the 16-year averages for the sport. This continues a downward trend over the last few years, with rates almost equivalent to preseason fall practice. Spring practice-injury rates equate to one injury for every two practices for a team of 70 participants. The final spring "game" injury rate (8.0) also was lower than the average for the sport.

The upper leg, knee and ankle were the most prevalent body parts injured, accounting for 48 percent of all reported injuries. Sprains, strains and contusions were the top types of injuries.

Forty-eight percent of all practice injuries required restricted or missed participation for seven days or more, while 11 percent required surgery of some type and 8 percent were concussions.

Baseball and softball

Baseball showed practice-injury rates (1.7) and game-injury rates (5.6) both slightly lower than the 19-year averages for the sport. Assuming 10 game participants, the game rate equates to one injury every 18 games. The shoulder, elbow and upper leg were the most common body parts injured in practice, accounting for 44 percent of reported injuries. The shoulder, upper leg and elbow were the top injuries in games, accounting for 38 percent of reported injuries. Strains, contusions and sprains were the top three types of reported injuries.

Forty percent of game injuries resulted in time loss of seven days or more, while 9 percent resulted in surgery. In games, non-throwing, noncontact (26 percent), pitching (13 percent) and baserunning (contact with ground) (13 percent) accounted for the majority of reported injuries.

In softball, data show practice-injury rates (2.2) and game-injury rates (4.0) both lower than the 18-year averages for the sport. Assuming 10 game participants, the game rate equates to one injury for every 25 games. The shoulder, ankle and upper leg were the most common body parts injured in practice, accounting for 37 percent of reported injuries, while the ankle, shoulder and upper leg accounted for 31 percent of the reported injuries in games. Strains, sprains and contusions were the top three types of injuries.

Thirty-three percent of game injuries resulted in time loss of seven days or more, while 8 percent resulted in surgery. Eighteen percent of game injuries involved contact with an opposing player, followed by non-throwing, noncontact (13 percent) and hit by batted ball (12 percent).

Lacrosse

In the first year of mandated eye protection, women's lacrosse showed practice-injury rates (3.0) and game-injury rates (6.1) lower than the 18-year averages for the sport. Assuming 15 game participants, the game rate equates to one injury every 11 games. Compared to the previous three years, the rate of above-the-neck injuries was significantly lower. The lower leg, ankle and knee were the top three body parts injured during practices, accounting for 47 percent of the reported injuries, while the ankle, knee and head accounted for 58 percent of the reported injuries in game competition. Sprains, contusions and strains were the top types of injuries in games. Eight percent of game injuries were concussions.

Thirty-two percent of women's lacrosse game injuries restricted participation for seven days or more, while 14 percent resulted in surgery. Twenty-one percent of game injuries resulted from player contact and 16 percent resulted from stick contact.

In men's lacrosse, practice-injury rates (3.6) were equal and game-injury rates (11.5) were lower than the 20-year averages for the sport. Assuming 15 game participants, the game rate equates to one injury every six games.

The ankle, upper leg and knee were the top body parts injured in practices, accounting for 48 percent of injuries. The shoulder, knee and upper leg were the top body parts injured in games, accounting for 40 percent of injuries. Sprains, strains and contusions were the top three types of injuries. Concussions accounted for 9 percent of both practice and game injuries.

Forty-nine percent of game injuries resulted in time loss of seven days or more, while 11 percent resulted in surgery. Contact with another player (44 percent) and noncontact (26 percent) were the reason for most game injuries.

How the ISS works

Exposure and injury data were submitted weekly by athletic trainers from institutions selected to represent a cross section of NCAA membership. The cross section was based on the three divisions of the NCAA. The selected institutions amount to a minimum 10 percent sample of the membership sponsoring the sport; therefore, the resulting data should be representative of the total population of NCAA institutions.

The system does not identify every injury that occurs at NCAA institutions in a particular sport. Rather, it collects a sampling that is representative of a cross section of the NCAA.

An athlete exposure (A-E) is one athlete participating in one practice or game in which he or she is exposed to the possibility of athletics injury. For example, five practices, each involving 60 participants, and one game involving 40 participants, would result in a total of 340 A-Es for a particular week.

A reportable injury in the ISS is defined as one that (1) occurred as a result of participation in an organized intercollegiate practice or game, and (2) required medical attention by a team athletic trainer or physician, and (3) resulted in restriction

of the student-athlete's participation or performance for one or more days beyond the day of injury.

An injury rate is a ratio of the number of injuries in a particular category to the number of athlete exposures in that category. This value is then multiplied by 1,000 to produce an injury rate per 1,000 athlete exposures. For example, six reportable injuries during a period of 563 athlete exposures would give an injury rate of 10.7 injuries per 1,000 athlete exposures ($6 \div 563 \times 1,000$).

Additional information on the report is available at www.ncaa.org/iss.

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EXHIBIT 14

IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF ILLINOIS
EASTERN DIVISION

ADRIAN ARRINGTON, DEREK)
OWENS, ANGELA PALACIOS and)
KYLE SOLOMON, individually)
and on behalf of all others)
similarly situated,)

Plaintiffs,)

-vs-)

NATIONAL COLLEGIATE)
ATHLETIC ASSOCIATION,)

Defendant.)

CASE NO.
11-cv-06356

DEPOSITION OF DAVID KLOSSNER

The deposition upon oral examination of DAVID KLOSSNER, a witness produced and sworn before me, Dianne Lockhart, CSR, RMR, CRR, Notary Public in and for the County of Marion, State of Indiana, taken on behalf of the Plaintiffs at the offices of Krieg DeVault LLP, One Indiana Square, Suite 2800, Indianapolis, Marion County, Indiana, on the 16th day of April, 2013, at 9:30 a.m., pursuant to the Federal Rules of Civil Procedure with written notice as to time and place thereof.

1 Q What was your understanding as to whether or not
2 a student-athlete could remain in the game after
3 a concussion prior to April of 2010?

4 MR. WORD: Objection to form.

5 A Well, my understanding is that, you know, the
6 NCAA publishes the Sports Medicine Handbook
7 which has the guideline in it on concussion
8 management, and that local medical decisions are
9 made by those who are on the sideline for each
10 institution and they make that decision.

11 Q So it follows from that that up until that time
12 a student-athlete could return to the game after
13 he sustained a concussion depending on what the
14 particular circumstances were and what the
15 member institution's personnel did; correct?

16 A That would be up to the individual personnel,
17 yes.

18 Q And it's correct to say that a student-athlete
19 was able to return to the game after a
20 concussion; correct?

21 A I don't know if I can speculate on that.

22 Q Well, I'm not asking you to speculate. Let me
23 see if I can refresh your memory of your
24 previous testimony.

25 So this is at page 116, line 14.

1 A Well, I didn't write these minutes, but I think
2 that -- I mean I believe my position at the time
3 was it's the responsibility of both the national
4 office and the membership for policies to
5 protect student-athlete health and well-being,
6 but the local medical care rests with the
7 individual institution. So it might be a little
8 bit different than what that sentence portrays.

9 Q Well, let me take it a step at a time. You said
10 that you did write the minutes?

11 A I did not write the minutes.

12 Q Oh, you said that you did not write the minutes?

13 A Yeah.

14 Q Okay. So how is the statement "Our basic policy
15 is that the responsibility to protect the health
16 of its student-athletes rests with each member
17 institution" inaccurate in your view?

18 A I think it's a partnership between the national
19 office's committee structures and each member
20 institution to protect its student-athletes. I
21 would just broaden it.

22 Q In what way?

23 A That each has a responsibility to protect the
24 health and well-being of its student-athletes.

25 Q And by each you mean the NCAA and each member

1 legislation. We need to figure out (Bernard,
2 Delise, or a governance VP) how this should be
3 worded. The concussion management plan may need
4 to be considered for a resolution or policy for
5 the 2010-2011 and secondly for the EC to
6 consider forwarding to each division to consider
7 as legislation."

8 Do you see that?

9 A I do.

10 Q Now, since you said that, do you have a
11 different or better understanding as to the way
12 the adoption of this proposed policy would work?

13 A I don't have a different view.

14 Q Well, you now understand, don't you, that the
15 adoption of the policy by the executive
16 committee on April 29, 2010, made it binding on
17 all member institutions; correct?

18 A It is, yes.

19 Q And that the legislation, the emergency
20 legislation which was passed in August of 2010
21 merely reflected the mandate of the CMP that was
22 the policy adopted by the EC in April of 2010;
23 correct?

24 A There are slight differences, and each division
25 did consider it separately from the EC.

1 were only 21 episodes of spearing called, what
2 steps were taken to address that concern?

3 A We developed educational posters that we sent to
4 the institutions to show examples and suggest
5 they be placed in locker rooms and in
6 officiating locker rooms to enhance education,
7 as well as we sent out the NATA Heads Up on
8 Spearing DVD that was developed to educate
9 coaches and student-athletes on the impact of
10 spearing.

11 Q And what about officials, was anything done with
12 officials?

13 A Well, my understanding is the officials are
14 educated through the rules videos which have
15 emphasis on making these calls.

16 Q And aside from these educational initiatives,
17 are you aware of any other steps that were taken
18 to ensure that spearing violations were called?

19 A I believe that conferences were provided the
20 authority to review plays that were flagrant
21 fouls in later 2010, '11 time frame.

22 Q Have you followed the statistics on the spearing
23 fouls that were called after 2006?

24 A I don't have the statistics.

25 Q Did you take an interest in the issue in terms

EXHIBIT 15



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Committee recommends several football rules proposals to enhance safety

By Ty Halpin
NCAA.org

The NCAA Football Rules Committee, which met Tuesday-Thursday in Charlotte, N.C., has recommended several rules proposals intended to enhance student-athlete safety for the 2012 season. Even though it is a non-rules change year as part of the two-year cycle process, these rule changes can be proposed for immediate implementation because they directly impact student-athlete safety.

"In all of our proposals, we are continuing the annual effort to find ways to make our game safer where we can," said Scot Dapp, chair of the committee and athletics director at Moravian College. "Without question, these changes will enhance student-athlete safety and we feel very comfortable based on the data we collected that the impact will be significant."

The proposed changes include:

- **Kickoff and Touchback Starting Lines Moved.** The committee voted to move the kickoff to the 35-yard line (currently set at the 30-yard line), and to require that kicking team players must be no further than five yards from the 35 at the kick, which is intended to limit the running start kicking teams have during the play. The committee also voted to move the touchback distance on free kicks to the 25-yard line instead of the 20-yard line to encourage more touchbacks. NCAA data indicates injuries during kickoffs occur more often than in other phases of the game.
- **Loss of Helmet During Play.** If a player loses his helmet (other than as the result of a foul by the opponent, like a facemask), it will be treated like an injury. The player must leave the game and is not allowed to participate for the next play. Current injury timeout rules guard against using this rule to gain an advantage from stopping the clock. Additionally, if a player loses his helmet, he must not continue to participate in play to protect him from injury. Data collected during the 2011 season indicated that helmets came off of players more than two times per game.
- **Blocking Below the Waist.** The intent of the changes made last season were to only allow blocking below the waist when the opposing player is likely to be prepared for this contact, but the opposite impact was discovered in some cases. To clarify the intent, the committee approved wording that essentially allows offensive players in the tackle box at the snap that are not in motion to block below the waist legally without restriction. All other players are restricted from blocking below the waist with a few exceptions (e.g. straight ahead blocks).
- **Shield Blocking Scheme on Punting Plays.** The committee reviewed several examples of shield blocking, which has become a popular blocking scheme for punting teams. In several cases, a receiving team player attempts to jump over this type of scheme in the backfield to block a punt. In some cases, these players are contacted and end up flipping in the air and landing on their head or shoulders. The committee is extremely concerned about this type of action and proposed a rule similar to the leaping rule on place kicks that does not allow the receiving team to jump over blockers, unless the player jumps straight up or between two players.
- **Additional Protection to Kick Returner.** Through officiating interpretation, the committee approved a recommendation to provide a kick returner additional protection to complete a catch before allowing contact by the kicking team.

All rules change recommendations must be approved by the Playing Rules Oversight Panel, which meets via conference call Feb. 21. The proposals will first be sent to the NCAA membership for comment.

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EXHIBIT 16



Latest News

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Football Rules Committee recommends ejection for targeting defenseless players

By Ty Halpin
NCAA.org

The NCAA Football Rules Committee took steps to further protect student-athletes by proposing a rule to eject players who target and contact defenseless players above the shoulders.

The committee, which met Monday-Wednesday, unanimously voted to increase the on-field penalty for targeting. The penalty, if approved by the Playing Rules Oversight Panel, will be a 15-yard penalty and automatic ejection of the player. The Panel meets on March 6 to review the proposals and membership comment.

"Student-athlete safety will always be one of our primary concerns," said Troy Calhoun, chair of the committee and head coach at the United States Air Force Academy. "We all have a role to embrace when making a positive impact on our game. Taking measures to remove targeting, or above the shoulder hits on defenseless players, will improve our great sport."

The action by the committee continues a progression to address dangerous contact through its rules. Targeting, which was initially approved by the committee as a separate foul in 2008, has been generally successful in terms of officiating application, which made the committee feel comfortable in adding to the penalty.

"The general consensus is that the officials on the field make this call properly the vast majority of the time and know what the committee is looking for with this foul," said Rogers Redding, secretary-editor of the rules committee and national coordinator of officials for College Football Officiating, LLC. "This move is being made to directly change player behavior and impact player safety."

The proposed rule will mirror the penalty for fighting. If the foul occurs in the first half of a game, the player is ejected for the remainder of the game. If the foul occurs in the second half or overtime of a game, the player is ejected for the remainder of the game and the first half of the next contest.

The committee has also decided, in an effort to address concerns when one of these plays is erroneously called, to make the ejection portion of the penalty reviewable through video replay. The replay official must have conclusive evidence that a player should not be ejected to overturn the call on the field. Additionally, a post-game conference review remains part of the rule and conferences always have the ability to add to a sanction.

Another area the committee has discussed in recent years deals with blocking below the waist. The past two years, the committee has adjusted rules governing these blocks in an attempt to remove some potentially dangerous plays from the game. The result has been a confusing and uneven rule that has not had the intended impact.

The proposed rule will focus on the block itself and allow these blocks in typical line play.

"What we're trying to do is write the rule to protect the player that will need to take on this block," said Calhoun. "So, the blocks from the front of this type in your typical line play are legal and anything that is from the side or back are not."

Previously, the position of the player at the snap changed whether or not the player could block below the waist legally.

"This rule was hard to teach to officials, hard to teach to coaches and really difficult to understand overall," said Redding. "That obviously wasn't the intent and we believe our new proposal will clear up a lot of confusion and keep the positive safety elements of the rule in place."

The committee also made several other proposals to improve the game. The committee proposed:

- To add a 10-second runoff with less than a minute remaining in either half when the sole reason for the clock to stop is an injury.
- To establish three seconds as the minimum amount of time required to be on the game clock in order to spike the ball to stop the clock. If one or two seconds remain on the clock, there is only time for the offense to run one more play.
- To require a player that changes numbers during the game to report this to the referee, who will announce this.
- To only allow one player number to be worn by the same team and participate at the same position (e.g., two quarterbacks on the same team are not allowed to have the same number).
- To require teams to have either their jersey or pants contrast in color to the playing field.
- To allow the use of electronic communication by the on-field officiating crew after successful experimentation by the Southeastern Conference. This is not a required piece of equipment but will allow officiating crews to use this tool.
- To allow the Big 12 Conference to experiment with using an eighth official on the field in conference games. This official would be placed in the backfield opposite the referee.
- To allow instant replay to adjust the clock at the end of each quarter. Previously this provision was only in place for the end of each half.

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EXHIBIT 17

DEPOSITION OF KEVIN GUSKIEWICZ, Ph.D.
May 9, 2013

1

IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF ILLINOIS
EASTERN DIVISION

X - - - - - X

ADRIAN ARRINGTON, DEREK :
OWENS, ANGELICA PALACIO, and:
KYLE SOLOMON, individually :
and on behalf of all others :
similarly situated, :
Plaintiffs, :

vs. : Case No. 11-cv-06356

NATIONAL COLLEGIATE ATHLETIC:
ASSOCIATION, :
Defendant. :

X - - - - - X

DEPOSITION OF KEVIN GUSKIEWICZ, Ph.D.
Chapel Hill, North Carolina
Thursday, May 9, 2013

DEPOSITION OF KEVIN GUSKIEWICZ, Ph.D.
May 9, 2013

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1 around concussion education, and we've not built
2 those in. That's not to say that they haven't or
3 individual teams might. We haven't made that
4 standard practice through the Gfeller Center.

5 (Court reporter asked for clarification.)

6 A. Gfeller, G-F-E-L-L-E-R. That's the name of
7 our -- it's the Matt Gfeller Sport-Related Traumatic
8 Brain Injury Research Center.

9 BY MR. AHLERING:

10 Q. So what you're saying is that UNC takes
11 unilateral educational steps aside from the NCAA in
12 regards to concussion?

13 A. The ones that are in our concussion policy.
14 The recommendation that came out of those 2010
15 guidelines were the member institutions develop
16 their independent concussion policy which, again,
17 goes to my point that I don't think the NCAA should
18 mandate certain things. I think the individual
19 universities themselves need to identify what works
20 best for their setting, which is what we do here.

21 Q. Okay. Great.

22 So your independent educational programs,
23 what do those consist of here?

24 A. The concussion facts sheet. In fact, it's
25 being reviewed as I speak. We have a sports

EXHIBIT 18

NATIONAL COLLEGIATE ATHLETIC
ASSOCIATION MEDICAL HANDBOOK
FOR SCHOOLS AND COLLEGES

*PREVENTION AND CARE
OF ATHLETIC INJURIES*

RECOMMENDATIONS FOR:

MEDICAL EXAMINATION

PRE-SEASON CONDITIONING

METHODS OF TRAINING

DIAGNOSIS AND TREATMENT
OF INJURIES

Copyright N. C. A. A.
1933

PREFACE

THE Council of the National Collegiate Athletic Association in February 1933 appointed the undersigned committee to study and report on the general subject of the training and medical supervision of athletic squads.

The committee has studied the subject in all its important phases. The conditions characteristic of the problem are outlined in the first section of the report. The following sections contain suggestions and recommendations.

The report is published in the form of a Handbook for the sake of convenience in ready reference by those interested.

It is hoped that doctors, coaches and trainers who have charge of athletic squads will find the report helpful in the administration of their responsibility.

EDGAR FAUVER, M.D.,
Wesleyan University

AUGUSTUS THORNDIKE, JR., M.D.,
Harvard University

JOSEPH E. RAYCROFT, M.D., *Chairman*
Princeton University

July 1933

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Printed by Princeton University Press

2. *In knee injury*, it is important to know the type of blow that produced it. A direct blow received from in front is usually productive of a bruise (contusion) of the muscle directly above the joint, or of the joint membrane or one of the bursae.

A blow from the side, or a twist, on the other hand, is usually productive of a ligament tear or sprain. The one making the examination should feel (palpate) the bony prominences about the knee with his hand inserted under the trousers and padding. If no deformity or bone tenderness is present, he should palpate the region of the attachments of the internal lateral (medial) and external lateral (lateral) ligaments.

Tenderness over these ligaments is pathognomic of a tear or sprain, and the player demonstrating this should be promptly removed to the dressing room for immediate treatment.

In the dressing room, with the patient stripped, a more thorough examination should be made to determine how many ligaments are torn and how severely. At this time it can be ascertained whether the crucial ligaments or semilunar cartilage are involved in the injury.

3. *In shoulder injury*, there are but two serious types to consider, namely, fracture of the clavicle and dislocation of the shoulder joint. In athletics these are the most common serious injuries of the shoulder girdle. A tear of the acromioclavicular ligament is common and although quite incapacitating it is relatively minor as far as functional recovery is concerned.

The examination of an injured shoulder should first be capable of ruling out the presence of a fracture or dislocation. This can be accomplished by careful palpation under the shoulder pads, feeling particularly for deformity or abnormal mobility about the joint and along the entire length of the clavicle (collar-bone).

Functional tests made only in absence of evidence of fracture or dislocation of the joint, should include tests against

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slight resistance of abduction, adduction and internal and external rotation, comparing simultaneously the normal and the injured shoulder. The degree of incapacity will determine the ability of the injured player to continue in the game. Good shoulder function is essential to good play in body-contact sports.

4. *Head injuries* are in a category by themselves and warrant special attention.

a. "Concussion of the brain" and "fracture of the skull" are terms utilized daily in the press as diagnoses rendered in automobile accidents. They are likewise often used in the press during a football season. The seriousness of these injuries is often overlooked. When one realizes that "concussion of the brain" should be defined as "bruising of brain tissues" often accompanied with actual bleeding into the tissues, one may realize that the condition should not be regarded lightly.

b. The first mental process of the brain that disappears after injury is the memory—memory for recent events. The actual loss of consciousness occurs only in the more serious concussions. Dizziness or a sense of "daze" is common in slight cases.

c. The examination of a player with a head injury should be undertaken with the patient in a reclining position. He should be questioned as to headache and dizziness and particularly as to his memory of recent events. Questions concerning the game, the name of the opponents, the score, the side which is on the offensive, the yard line and the number of the down are important. Questions on the day of the week, the months and year, etc., are sometimes useful. If the injured can answer all these questions, the concussion cannot be very severe, but before making a decision to let him play, he should be made to stand and run around to test objectively for dizziness and loss of balance. Routine tests for nystagmus and Romberg's sign should be made.

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d. If the individual with a head injury can answer the above questionnaire and demonstrates no headache or dizziness subjectively, and if objective tests for dizziness are negative he may return to play under close observation from the side lines. However, if he fails to answer the questions and shows signs of headache or dizziness, he should be removed from the game. *Actual unconsciousness for as long a period as one minute, should preclude further play that day.*

E. Use Stretcher in Case of Serious Injury.

Players exhibiting serious injuries of the lower extremity, trunk and head should be removed from the field of play on a stretcher. With all upper extremity injuries and minor injuries of the head, trunk or lower extremity the player may be assisted off the field by managers, rubbers and players. When the injured player reaches the side line, a second thorough examination should be made by the team doctor to determine the degree of seriousness of the injury. It is always advisable to make this second examination where the player may be "stripped" (in the dressing room), then if treatment is necessary it can be applied promptly.

F. List of Injuries and Recommended Method of Treatment.

To describe the treatment of the more common types of injuries received in athletics in detail, would require more space than seems necessary. Therefore, the following table is offered presenting as suggestions, recognized and approved methods of treatment.

TABLE

TYPE OF INJURY	IMMEDIATE TREATMENT	CONVALESCENT TREATMENT	EXPECTED PERIOD OF CONVALESCENCE
Abrasions	1. Mechanical cleansing with soap, water, and brush 2. Antiseptic — Iodine, Mercurochrome, Cpd. Tinct. Benzoin 3. Dry sterile dressing	Daily dressings until healed	Very few days Period of disability 0
Lacerations	1. Mechanical cleansing with soap, water and brush or gauze 2. Irrigation with ample sterile water or saline solution 3. Antiseptic — Iodine, Mercurochrome 4. Proper suturing (stitching) 5. Dry sterile dressing with compression bandage	Daily dressings Removal of sutures at appropriate time	Expect healing in 6-7 days Period of disability 0-2 days
Puncture Wounds	1. Debridement of wound 2. Mechanical cleansing 3. Antiseptic 4. Do not suture 5. Dry sterile dressing with compression bandage 6. Antitoxic serum prophylaxis	Daily dressings Expect serum reaction 5-8 days	Expect healing in 8-14 days Period of disability depends on location of wound and presence of serum reaction
Contusions (Bruises) of Muscles and Joints	1. Application of cold for 1-2 hours before swelling starts 2. Well padded compression bandage 3. Rest of injured part for 24-48 hours	Daily heat and massage until function of muscle or joint returns to normal Protection of injured part by padding or strapping after individual returns to game	Depends upon the severity or degree of tissue damage Disability period expected from a few days up to 3 weeks

TABLE—(Continued)

TYPE OF INJURY	IMMEDIATE TREATMENT	CONVALESCENT TREATMENT	EXPECTED PERIOD OF CONVALESCENCE
Sprains (straining) or tearing of joint ligaments	1. Application for 1-2 hours of cold before swelling starts 2. Well padded compression bandage 3. Rest of injured joint for 24-48 hours	Daily heat and massage until function of joint returns to normal Protection of injured part by padding or strapping when individual returns to play	Depends upon the severity or degree of tissue damage Period of disability 2-21 days Depends upon location of injury Longer period in lower extremity
Dislocation of joints and Fractures of bones	1. Only finger dislocation should be attempted on the field 2. These injuries are the responsibility of a medical man only 3. First aid measures should be aimed at the application of cold at site of injury and complete immobilization of joints above and below site of fracture or dislocation, until placed under the care of a doctor 4. X-ray 5. Reduction under anesthetic 6. Proper fixation in appropriate splints or plaster 7. Post reduction X-ray	In dislocations without fractures complete immobilization is a mistake. <i>In fractures complete immobilization over too long a period of time is a mistake</i> Care of the skin under apparatus or equipment used for immobilization should be emphasized In 2-3 weeks heat and massage can be started in fractures In 24-48 hours heat and massage can be started in dislocations In fractures, check up X-rays should be taken every 2-3 weeks Massage should be gentle Excessive or forced active motion treatment should be forbidden	In simple dislocations and fractures return to normal function is essential before any individual can be permitted to play Dislocations and fractures of the upper extremity require from 3-8 weeks to heal or return to normal function Dislocations and fractures of the lower extremity require a longer period of convalescence The injured bone or joint should be safeguarded by padding, strapping, etc., when the individual returns to play

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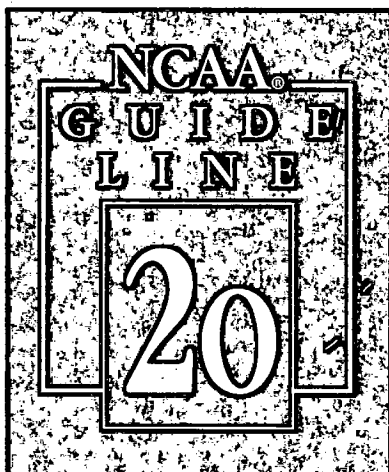
TABLE—(Continued)

TYPE OF INJURY	IMMEDIATE TREATMENT	CONVALESCENT TREATMENT	EXPECTED PERIOD OF CONVALESCENCE
Concussion	1. Responsibility is medical 2. Rest in recumbency 3. Chaperone constantly 4. Sudden change in pulse rate and blood pressure require expert attention 5. If headache persists over 1 hour examine eye grounds and give an ounce of Epsom salt by mouth 6. If headache or dizziness persist over 2 hours the individual is better off in the hospital 7. X-ray of skull in every case of prolonged headache or dizziness	Infirmity or hospital treatment until symptom free 48 hours	If symptoms of headache, dizziness, blurred vision, vomiting continue over 48 hours, individual should not be permitted to compete for 21 days or longer, if at all There is definitely a condition described as "punch drunk" and often recurrent concussion cases in football and boxing demonstrate this Any individual who is knocked unconscious repeatedly on slight provocation, should be forbidden to play body-contact sport

EXHIBIT 19

1994-95 NCAA[®] Sports Medicine Handbook





Concussion and Second-Impact Syndrome

June 1994

Concussion and second-impact syndrome are two potentially life-threatening risks to which student-athletes are exposed. It is estimated that concussions are suffered by one in five high-school football players each season, which, if accurate, means that more than 250,000 concussions occur annually at that level alone. One might assume similar risk of injury to college football players. In college football, nine of 10 head injuries are reported to be concussions, with football head injuries occurring twice as frequently as neck injuries.

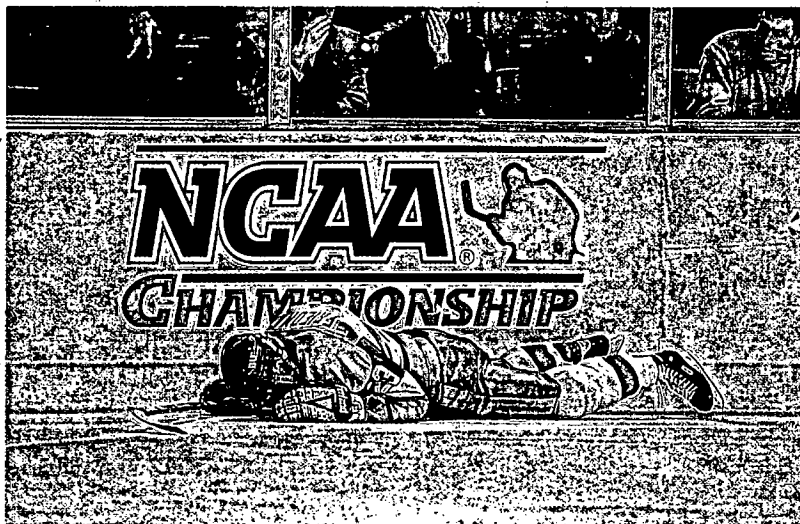
Some of the mild concussions, the so-called "bell rung" or "ding," with no loss of consciousness or

posttraumatic amnesia may go unrecognized by the coaches, athletics trainers, fellow players or team physicians. The cumulative effect of these mild concussions is unknown, so guidelines for sports participation are difficult to establish. Furthermore, categorizations for severity of concussion vary and are not universally accepted, compounding the difficulty of establishing guidelines for participation.

The Colorado Medical Society Sports Medicine Committee has developed basic guidelines for the management of concussion in sports. These guidelines, summarized in the following table, have reasonable application to clear-

ance guidelines in the preparticipation evaluation. Although these guidelines may assist in clinical decision-making, they are not absolute and should not be substituted for the clinical judgment of the examining physician. If there are any questions as to the severity of past head trauma, or if the trauma required intracranial surgery, clearance should be deferred until further records are obtained and/or neurosurgical evaluation is performed. No athlete should be allowed to return to contact sports on the same day that a grade-three concussion was received.

A table of sideline evaluation for possible concussion also is included for reference.





Guideline 2-0 Continued

Concussion and Second-Impact Syndrome

Grading Concussions in Sports and Guidelines for Return to Play*

*—These guidelines are not absolute and therefore should not substitute for the clinical judgment of the examining physician.

Grading		Guidelines		
Severity	Signs/symptoms	First concussion	Second concussion	Third concussion
Grade I (mild)	Confusion without amnesia; no loss of consciousness	May return to play if asymptomatic ^{††} at least 20 minutes	Terminate contest/practice; may return to play if asymptomatic ^{††} for at least one week	Terminate season; may return to play in three months if asymptomatic ^{††}
Grade II (moderate)	Confusion with amnesia*; no loss of consciousness [†]	Terminate contest/practice; may return to play if asymptomatic ^{††} for at least one week	Consider terminating season, but may return to play if asymptomatic ^{††} for one month	Terminate season; may return to play next season if asymptomatic ^{††}
Grade III (severe)	Loss of consciousness [†]	Terminate contest/practice and transport to hospital; may return to play one month after two consecutive asymptomatic ^{††} weeks; conditioning allowed after one asymptomatic ^{††} week	Terminate season; may return to play next season if asymptomatic ^{††}	Terminate season; strongly discourage return to contact/collision sports

*—Posttraumatic amnesia (amnesia for events following the impact) or more severe retrograde amnesia (amnesia for events preceding the impact).

†—Some clinicians include "brief" loss of consciousness in Grade II and reserve "prolonged" loss of consciousness for Grade III. However, the definitions of "brief" and "prolonged" are not universally accepted.

††—No headache, confusion, dizziness, impaired orientation, impaired concentration or memory dysfunction during rest or exertion. (Adapted from: Colorado Medical Society. Report of the Sports Medicine Committee: Guidelines for the management of concussion in sports (revised). Denver: Colorado Medical Society, 1991.)

Table courtesy of:

Preparticipation physical evaluation (monograph). Kansas City, Missouri: American Academy of Family Physicians, American Academy of Pediatrics, American Medical Society for Sports Medicine, American Orthopaedic Society for Sports Medicine, American Osteopathic Academy of Sports Medicine, 1992.



Guideline 2-0 Continued

Concussion and Second-Impact Syndrome

Sideline Evaluation For Concussion (from Colorado Head Injury Foundation, Inc.)

1. Mental-Status Testing

a. Orientation: Time, place, person and situation (circumstances of injury)

b. Concentration: Digits Backward

3-1-7

4-6-8-2

5-9-3-7-4

Months of year in reverse order

c. Memory: Names of teams in prior contest

President, Governor, Mayor.

Recent newsworthy events,

3 words and 3 objects at 0 and 5 minutes.

Details of contest (plays, moves, strategies, etc.)

2. Exertional Provocative Tests:

40-yard sprint

5 push-ups

5 sit-ups

5 knee bends

(Any appearance of associated symptoms is abnormal, e.g., headache, dizziness, nausea, unsteadiness, photophobia, blurred or double vision, emotional lability or mental-status changes.)

3. Neurological Tests:

Pupils:

Symmetry and reaction

Coordination:

Finger-nose finger and tandem

Sensation:

Finger-nose (eyes closed) and Romberg



Guideline 2-0 Continued

Concussion and Second-Impact Syndrome

Second-Impact Syndrome

The medical staff also needs to be aware of the often lethal consequences of the second-impact syndrome that occur when an individual sustains a second, often minor, blow to the head before the initial symptoms of the head injury are over. The resulting loss of autoregulation of the brain's blood supply could result in vascular engorgement and herniation of the lower brain, resulting in death. There is an approximately 50 percent mortality rate associated with second-impact syndrome. Treatment is prompt intubation, hyperventilation and IV osmotic diuretics.

Summary

The attending medical staff should not allow a player to resume participation in sports until the injured student-athlete has fully recovered from his/her postconcussive symptoms. With regard to injury prevention in football, coaches, athletics trainers and medical personnel should strive to help educate the player in proper tackling techniques so that these injuries can be minimized. Neck strengthening exercises are important in preventing rapid acceleration/deceleration injuries that can occur without a direct blow to the head. In addition, proper equipment and maintenance, including adequate hel-

met fit (inflation of air bladder in helmet) and shock-absorbing mouthpieces, are essential in preventing concussions. All medical personnel need to be reminded that all unconscious student-ath-

letes should be suspected of a cervical-spine injury until proven otherwise. Special care to the cervical spine should always be used in transporting an unconscious player.

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EXHIBIT 20

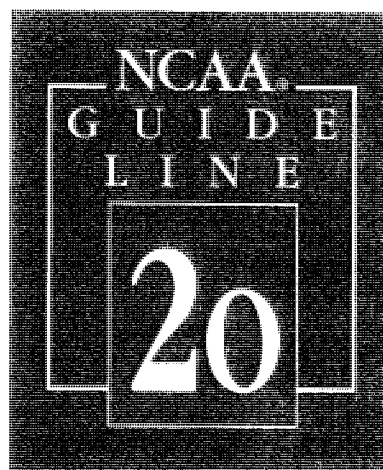
1997-98 NCAA[®] Sports Medicine Handbook



Concussion and Second-Impact Syndrome

June 1994

Revised July 1997



Concussion and the resulting potential complications, such as second-impact syndrome, are potentially life-threatening situations that student-athletes may suffer as a result of their athletics participation. While concussions may occur in almost any contact activity, data from the NCAA Injury Surveillance System (ISS) for the period 1994-96 estimated that more than 1,500 concussions

occur annually in college football. Nine of every 10 head injuries in the sport are reported as concussions. Since no head injury should be considered trivial, proper evaluation and sound decision-making are imperative before the sports medicine profession permits the student-athlete to return to activity.

The definition of concussion is a post-traumatic impairment of

neural status. While loss of consciousness and amnesia have been viewed as the primary components of this injury and have formed the basis for most grading scales, some of the mild concussions, the so-called "bell rung" or "ding," with no resulting loss of consciousness or post-traumatic amnesia, may go unrecognized by coaches, athletic trainers, fellow players or team physicians. The symptoms of concussion (Table 1) vary, depending on the degree and extent of injury. **A student-athlete rendered unconscious for any period of time should not be permitted to return to the practice or game in which the head injury occurred. In addition, no student-athlete should be allowed to return to athletics activity while symptomatic.** Prolonged unconsciousness and neurologic abnormalities suggesting intracranial pathology may require urgent neurosurgical consultation or transfer to a trauma center. If there are any questions as to the severity of past head trauma, or if the trauma required intracranial surgery, clearance of the student-athlete should be deferred until further records are obtained or neurosurgical evaluation is performed.

Several grading scales have been proposed to characterize the degrees, potential severity and return-to-play criteria of





Guideline 2-0 Continued

Concussion and Second-Impact Syndrome

concussion.^{6,7,9,12,13,15} Unfortunately, these categorizations vary and are not universally accepted. Based on the current lack of consensus among the medical community on management of concussions, the NCAA does not endorse any specific concussion grading scale or return-to-play criteria. Although the grading scales and return-to-play criteria currently in the literature may assist in the clinical decision-making for the student-athlete who has suffered a concussion, these grading scales and return-to-play criteria should not be substituted for the clinical judgment of the examining physician.

Post-Concussion Syndrome

After a head injury, the student-athlete may report multiple symptoms (Table 1). While these symptoms usually are short-lived and resolve spontaneously, some individuals may have persistent symptoms after a concussion. Characteristics of post-concussion syndrome are symptoms such as impaired memory and concentration, persistent headache, fatigue, mood and sleep disturbances and dizziness. The student-athlete with symptoms of post-concussion syndrome should not be considered for return to physical activity until resolution of symptoms occurs. Diagnostic studies such as

MRI or CT imaging and/or neuropsychological testing may be indicated and referral to a neurologist or neurosurgeon should be considered.

Multiple Concussions

The athlete who suffers one concussion may be at greater risk for another. Evidence of cognitive impairment and neuroanatomical damage has been reported in some individuals. The number and degree of concussions necessary for permanent impairment is unknown. Return-to-play decisions should be made on an individual basis after the student-athlete has full recovery of neuronal function and can be informed of the potential risks for subsequent concussion and possible complications. As with all concussions, careful review of the

mechanism of injury and appropriate changes in the environment that can be made to reduce the likelihood of subsequent concussion should be undertaken.

Second-Impact Syndrome

The medical staff needs to be aware of the rare but often fatal consequence of the second-impact syndrome. This occurs when an individual sustains a second, often minor trauma to the head before the initial symptoms of the first head injury have resolved. The resulting loss of autoregulation of the brain's blood supply could result in vascular engorgement and herniation of the lower brain, causing death. There is a high mortality rate associated with second-impact syndrome.

Table 1
Symptoms of Concussion

Headache	Irritability
Confusion/Disorientation	Hyperexcitability
Tinnitus	Loss of Consciousness
Dizziness	Unsteadiness
Nausea	Visual Disturbance
Amnesia	Concentration Difficulty
Post-traumatic	
Retrograde	



Guideline 2-0 Continued

Concussion and Second-Impact Syndrome

Summary

The attending medical staff should not allow a player to resume participation in physical activity while the injured student-athlete is recovering from his/her post-concussive symptoms. All individuals involved in sports, including coaches, athletic trainers, team physicians, student-athletes and parents should be educated in the symptoms of concussion and the need for medical attention in the

event of such an injury. With regard to injury prevention in football, coaches, athletic trainers and medical personnel should strive to help educate players in proper tackling techniques so that these injuries can be minimized. Neck-strengthening exercises are important in preventing rapid acceleration/deceleration injuries that can occur without a direct blow to the head. In addition, proper equipment and maintenance, including adequate helmet

fit (inflation of air bladder in helmet) and shock-absorbing mouthpieces, can be beneficial in preventing concussions. All medical personnel need to be reminded that they should suspect all unconscious student-athletes to have suffered a cervical spine injury until proven otherwise. Special care to the cervical spine should always be used in transporting an unconscious player.

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Guideline 2-0 Continued

Concussion and Second-Impact Syndrome

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EXHIBIT 21





THE NATIONAL COLLEGIATE ATHLETIC ASSOCIATION

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317/917-6222
<http://www.ncaa.org>

Seventeenth Edition
August 2004

Compiled By: David Klossner, *Assistant Director of Education Outreach.*

Distributed to directors of athletics, senior woman administrators, faculty athletics representatives, head athletic trainers, team physicians, CHAMPS/Life Skills coordinators, individual student-athlete advisory committees and conference commissioners.

Note: Revisions to the guidelines contained in the NCAA Sports Medicine Handbook may be made on a yearly basis. Between printings of the handbook, revisions will be published in The NCAA News. It is important that persons using this handbook be aware of any such revisions. The NCAA Committee on Competitive Safeguards and Medical Aspects of Sports suggests that such revisions be recorded in the handbook, thereby keeping this publication current. New guidelines and major revisions have been highlighted with blue shading.

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<http://www.ncaa.org/health-safety>

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PREFACE

The health and safety principle of the National Collegiate Athletic Association's constitution provides that it is the responsibility of each member institution to protect the health of, and provide a safe environment for, each of its participating student-athletes. To provide guidance in accomplishing this objective and to assist member schools in developing a safe intercollegiate athletics program, the NCAA Committee on Competitive Safeguards and Medical Aspects of Sports creates a Sports Medicine Handbook. The committee has agreed to formulate guidelines for sports medicine care and protection of student-athletes' health and safety for topics relevant to intercollegiate athletics, applicable to a large population of student-athletes, and not accessible in another easily obtainable source.

This handbook consists of guidelines for each institution to consider in developing sports medicine policies appropriate for its intercollegiate athletics program. In some instances, accompanying references to sports medicine or legal resource materials are provided for further guidance. These recommendations are not intended to establish a legal standard of care that must be strictly adhered to by member institutions. In other words, these guidelines are not mandates that an institution is

required to follow to avoid legal liability or disciplinary sanctions by the NCAA. However, an institution has a legal duty to use reasonable care in conducting its intercollegiate athletics program, and guidelines may constitute some evidence of the legal standard of care.

These general guidelines are not intended to supersede the exercise of medical judgment in specific situations by a member institution's sports medicine staff. In all instances, determination of the appropriate care and treatment of student-athletes must be based on the clinical judgment of the institution's team physician or athletic health care team that is consistent with sound principles of sports medicine care. These recommendations provide guidance for an institution's athletics administrators and sports medicine staff in protecting student-athletes' health and safety, but do not establish any rigid requirements that must be followed in all cases.

This handbook is produced annually and sent to directors of athletics, senior woman administrators, faculty athletics representatives, athletic trainers, team physicians, CHAMPS/Life Skills coordinators, student-athlete advisory committees and conference commissioners at each member institution in

the fall. Please view the NCAA Sports Medicine Handbook as a tool to help your institution develop its sports medicine administrative policies. Such policies should reflect a commitment to protecting your student-athletes' health and well being as well as an awareness of the guidelines set forth in this handbook.

2004-05

Sports Medicine Guidelines

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New or significantly revised guidelines are highlighted on this page. Smaller revisions are highlighted within the specific guideline.

FOREWORD

Shared Responsibility for Intercollegiate Sports Safety

Participation in intercollegiate athletics involves unavoidable exposure to an inherent risk of injury. However, student-athletes rightfully assume that those who sponsor intercollegiate athletics have taken reasonable precautions to minimize the risks of injury from athletics participation. In an effort to do so, the NCAA collects injury data in intercollegiate sports. When appropriate, the NCAA Committee on Competitive Safeguards and Medical Aspects of Sports makes recommendations to modify safety guidelines, equipment standards, or a sport's rules of play.

It is important to recognize that rule books, safety guidelines, and equipment standards, while helpful means of promoting safe athletics participation, are themselves insufficient to accomplish this goal. To effectively minimize the risks of injury from athletics participation, everyone involved in intercollegiate athletics must understand and respect the intent and objectives of applicable rules, guidelines, and standards.

The institution, through its athletics director, is responsible for establishing a safe environment for its student-athletes to participate in its intercollegiate athletics program.

Coaches should appropriately warn student-athletes about the sport's inherent risks of injury and instruct them how to minimize such risks while participating in games, practices, and training.

The team physician and athletic health care team should assume responsibility for developing an appropriate injury prevention program and providing quality sports medicine care to injured student-athletes.

Student-athletes should fully understand and comply with the rules and standard of play that govern their sports as well as follow established procedures to minimize their risk of injury.

In summary, all persons participating in, or associated with, an institution's intercollegiate athletics program share responsibility for taking steps to reduce effectively the risk of injury during intercollegiate athletic competition.

NCAA®

GUIDELINE 2i

Concussion or Mild Traumatic Brain Injury (mTBI) in the Athlete

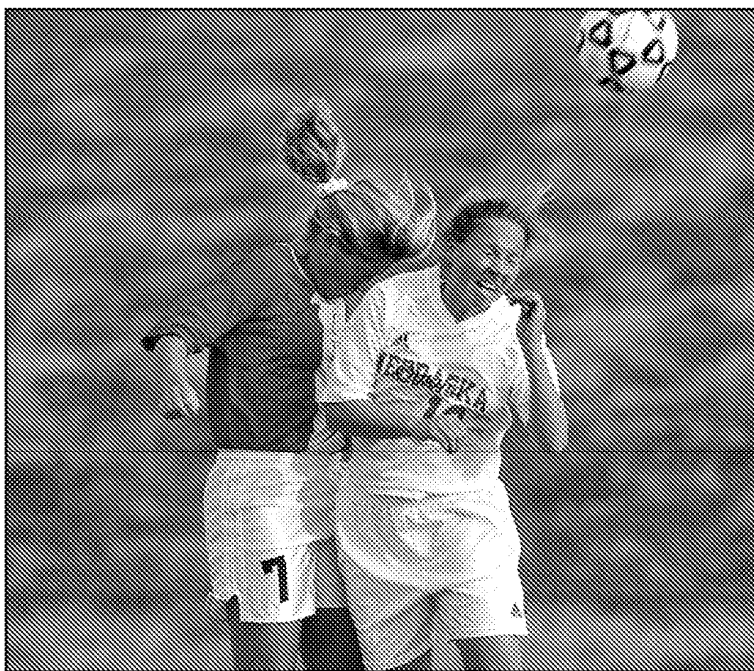
June 1994 • Revised July 2004

Over 300,000 concussions occur every year, and participation in sport is a common cause of these injuries. These injuries are often difficult to detect, with athletes often underreporting their injury, minimizing their importance, or not recognizing that an injury has occurred. At the college level, these injuries are more common in certain sports such as football, ice hockey, men's and women's soccer, and men's lacrosse. However, they also account for a significant percentage of injuries in men's and women's basketball, women's lacrosse, and other sports traditionally considered "non-contact".

The incidence in helmeted versus non-helmeted sports is also similar. In the years 2000-2002, the rate of concussion during games per 1000 athlete exposures for football was 3.1, for men's ice hockey 2.4, for men's wrestling 1.6 and for men's lacrosse 1.4, respectively, 2.4 for women's ice hockey, 2.1 for women's soccer, 1.7 for men's soccer, 0.8 for field hockey, 0.8 for women's lacrosse, 0.7 for women's basketball, and 0.5 for men's basketball, accounting for between 6.4 and 18.3% of the injuries for these sports as reported by the NCAA Injury Surveillance System (ISS).

Assessment and management of concussive injuries, and return to play decisions remain some of the most difficult responsibilities facing the sports medicine team. There are potentially serious complications of multiple or severe concussions including second impact syndrome, post-concussive syndrome, or post-traumatic encephalopathy. Though there is some controversy as to the existence of second impact syndrome, where a second impact with potentially catastrophic consequences occurs prior to the full recovery after a first insult, the risks include severe cognitive compromise as well as death. Other associated injuries which can occur in the setting of concussion include seizures, cervical spine injuries, skull fractures, and/or intracranial bleed. Due to the serious nature of mild traumatic brain injury, as well as these serious potential complications, it is imperative that the health care professionals taking care of athletes are able to recognize, evaluate, and treat these injuries in a complete and progressive fashion.

Concussion or mild traumatic brain injury (mTBI) has been defined as "a complex pathophysiological process affecting the brain, induced by traumatic biomechanical forces." Although concussion most commonly occurs after a direct blow to the head, it can occur after a blow elsewhere that is transmitted



Concussion or Mild Traumatic Brain Injury

to the head. Concussions can be defined by the clinical features, pathophysiological changes and / or biomechanical forces that occur, and these have been described in the literature. The neurochemical and neurometabolic changes that occur in concussive injury have been elucidated, and exciting research is underway describing the genetic factors that may play a role in determining which individuals are at an increased risk for sustaining brain injury.

Most commonly, concussion is characterized by the rapid onset of cognitive impairment that is self limited and spontaneously resolves. The acute symptoms of concussion, listed below, are felt to reflect a functional disturbance in cognitive function instead of structural abnormalities, which is why diagnostic tests such as magnetic resonance imaging (MRI) and computerized tomography (CT) scans are most often normal. These studies may have their role in assessing and evaluating the head injured athlete whenever there is concern for the associated injuries of skull fracture, intracranial bleed, seizures, when there is concern for structural abnormalities or when the symptoms of an athlete persist or deteriorate.

Concussion is associated with clinical scenarios that often clear spontaneously, and may or may not be associated with loss of con-

sciousness (LOC).

The sideline evaluation of the brain injured athlete should include an assessment of airway, breathing, and circulation (ABC's), followed by an assessment of the cervical spine and skull for associated injury. The sideline evaluation should also include a neurological and mental status examination and some form of brief neurocognitive testing to assess memory function and attention. This can be in the form of questions regarding the particular practice or competition, previous game results, and remote and recent memory, as well as questions to test the athlete's recall of words, months of the year backwards and calculations. Special note should be made regarding the presence and duration of retrograde or anterograde amnesia, as well as the presence and duration of confusion. A timeline of injury and the

presence of symptoms should be noted. These sideline tests should be performed and repeated as necessary, but do not take the place of other comprehensive neuropsychological tests.

Once an injury occurs and an initial assessment has been made, it is important to determine an initial plan of action, which includes deciding on whether additional referral to a physician and/or emergency department should take place, as well as determining the follow-up care. The medical staff should also determine whether additional observation or hospital admission should be considered.

Follow up care and instructions should be given to the athlete, and ensuring that they are not left alone for an initial period of time should be considered. Athletes should avoid alcohol or other substances

Table 1
SIGNS AND SYMPTOMS OF mTBI

Loss of consciousness (LOC)	Visual Disturbances
Confusion	(Photophobia, blurry vision, photophobia vision, double vision)
Post-traumatic amnesia (PTA)	Disequilibrium
Retrograde amnesia (RGA)	Feeling "in a fog", "zoned out"
Disorientation	Vacant stare
Delayed verbal and motor responses	Emotional lability
Inability to focus	Dizziness
Headache	Slurred/ incoherent speech
Nausea / Vomiting	
Excessive drowsiness	

Concussion or Mild Traumatic Brain Injury

that will impair their cognitive function, and also avoid aspirin and other medications that can increase their risk of bleeding.

As mentioned previously, conventional imaging studies such as MRI and CT scans are usually normal in mTBI. However, these studies are considered an adjunct when any structural lesion, such as an intracranial bleed or fracture, is suspected. If an athlete experiences prolonged loss of consciousness, confusion, seizure activity, focal neurologic deficits, or persistent clinical or cognitive symptoms, then additional testing may be indicated.

There are several grading systems and return to play guidelines in the literature regarding concussion in sport (AAN, Torg, Cantu). However, there may be limitations because they presume that LOC is associated with more severe injuries. It has been demonstrated that LOC does not correlate with severity of injury in patients presenting to an emergency depart-

ment with closed head injury, and has also been demonstrated in athletes with concussion. (Lovell '99). It has been further demonstrated that retrograde amnesia (RGA), post traumatic amnesia (PTA), as well as the duration of confusion & mental status changes greater than 5 minutes may be more sensitive indicators of injury severity (Collins '03). More recent grading systems have been published which attempt to take into account the expanding research in the field of mTBI in athletes. Though it is useful to become familiar with these guidelines, it is important to remember that many of these injuries are best treated in an individual fashion (Cantu '01, Vienna Conference, NATA '04).

Several recent publications have endorsed the use of neurocognitive or neuropsychological testing as the cornerstone of concussion evaluation. These tests provide a reliable assessment and quantification of brain function by examining brain-behavior relationships. These tests are designed to measure a broad

range of cognitive function including speed of information processing, memory recall, attention and concentration, reaction time, scanning and visual tracking ability, and problem solving ability. Several computerized versions of these tests have also been designed to improve the availability of these tests, and make them easier to distribute and utilize. Ideally, these tests are performed prior to the season as a "baseline" with which post-injury tests can be compared. Despite the utility of neuropsychological test batteries in the assessment and treatment of concussion in athletes, several questions remain unanswered. Further research is needed to understand the complete role of neuropsychological testing.

Given these limitations, it is essential that the medical care team taking care of athletes continue to rely on their clinical skills in evaluating the head injured athlete to the best of their ability. It is essential that no athlete be allowed to return to participation when any symptoms, including mild headache, persist. It has also been recommended that for any injury which involves significant symptoms, long duration of symptoms, or difficulties with memory function (either retrograde or antegrade) not be allowed to return to play during the same day of competition. The duration of time that an athlete should be kept

Table 2
SYMPTOMS OF POST-CONCUSSION SYNDROME

Loss of intellectual capacity	Fatigue
Poor recent memory	Irritability
Personality changes	Phono/ photophobia
Headaches	Sleep disturbances
Dizziness	Sleep disturbances
Lack of concentration	Depressed mood
Poor attention	Anxiety

Concussion or Mild Traumatic Brain Injury

out of physical activity is unclear, and in most instances, individualized return to play decisions should be made. These decisions will often depend on the clinical symptoms, as well as previous history of concussion, and severity of previous concussions. Additional factors include the sport, position, age, support system for the athlete, and the overall "readiness" of the athlete to return to sport.

Once an athlete is completely asymptomatic the return to play

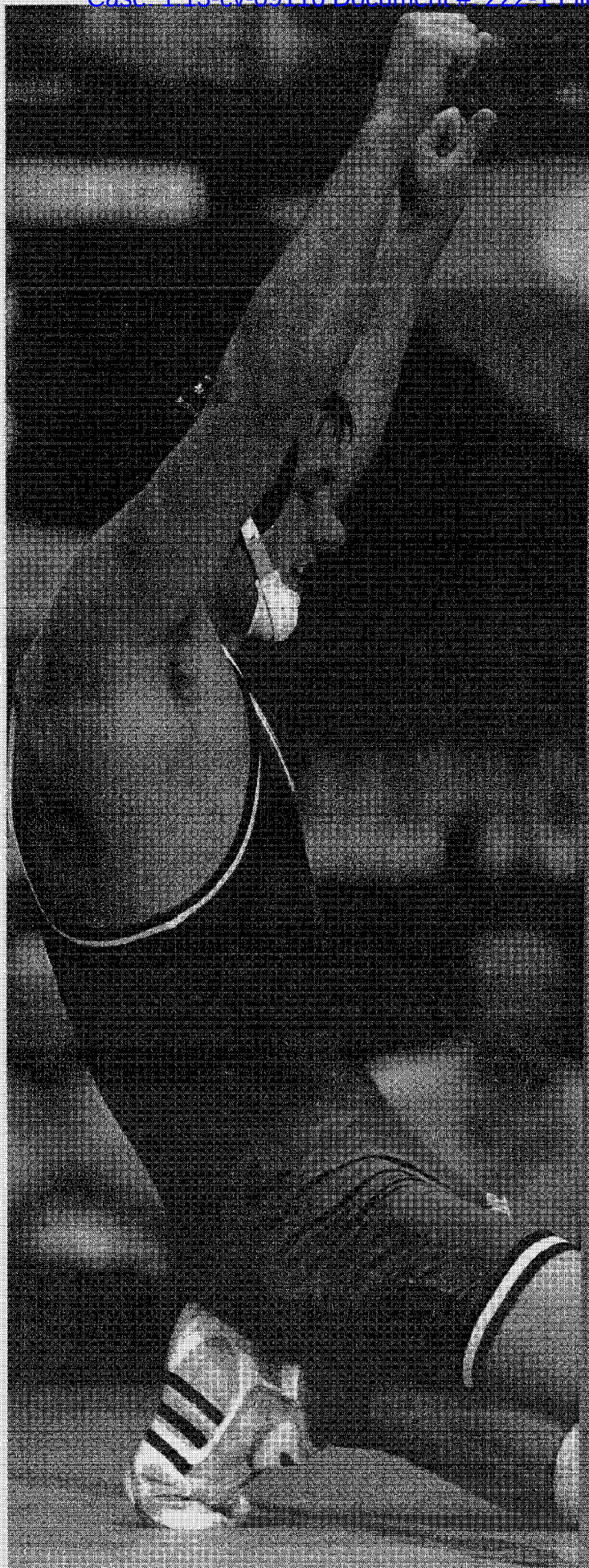
progression should occur in a step-wise fashion with gradual increments in physical exertion and risk of contact. After a period of remaining asymptomatic, the first step is an "exertional challenge" where the athlete exercises for 15-20 minutes in an activity such as biking or running where they increase their heartrate and break a sweat. If they do not experience any symptoms, this can be followed by a steady increase in exertion, followed by return to sport-specific activities that

do not put the athlete at risk for contact. Examples include dribbling a ball or shooting, stickwork or passing, or other agilities. This allows the athlete to return to the practice setting albeit in a limited role. Finally, the athlete can be progressed to practice activities with limited then full contact and finally full contact. How quickly one moves through this progression remains controversial.

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EXHIBIT 22



2009-10 NCAA®
Sports Medicine
Handbook

NCAA® GUIDELINE 2i

Concussion or Mild Traumatic Brain Injury (mTBI) in the Athlete

June 1994 • Revised July 2004

More than 300,000 concussions occur every year, and participation in sport is a common cause of these injuries. These injuries are often difficult to detect, with athletes often underreporting their injury, minimizing their importance or not recognizing that an injury has occurred. At the college level, these injuries are more common in certain sports, such as football, ice hockey, men's and women's soccer, and men's lacrosse. However, they also account for a significant percentage of injuries in men's and women's basketball, women's lacrosse, and other sports

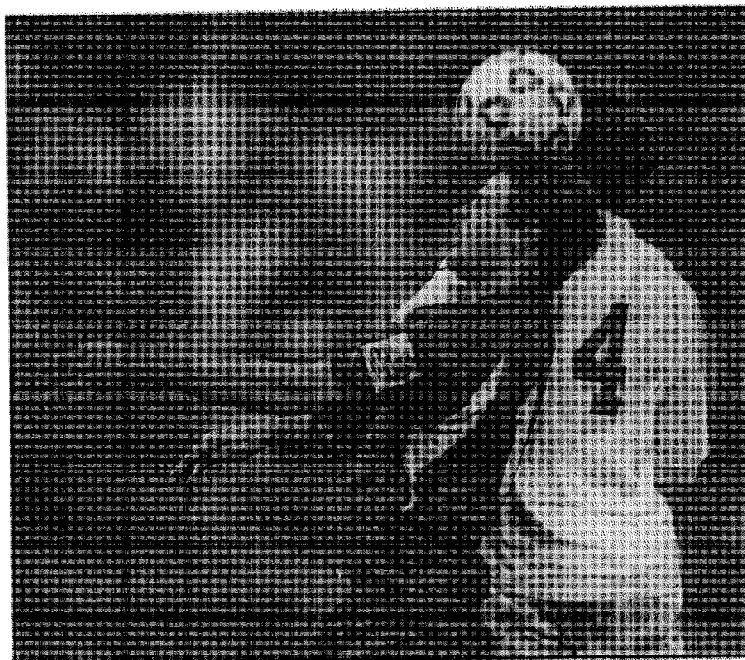
traditionally considered "noncontact."

The incidence in helmeted versus nonhelmeted sports is also similar. In the years 2000 to 2002, the rate of concussion during games per 1,000 athlete exposures for football was 3.1, for men's ice hockey 2.4, for men's wrestling 1.6, for men's lacrosse 1.4, for women's ice hockey 2.4, for women's soccer 2.1, for men's soccer 1.7, for field hockey 0.8, for women's lacrosse 0.8, for women's basketball 0.7, and for men's basketball 0.5, accounting for between 6.4 and 18.3 percent of the injuries for

these sports as reported by the NCAA Injury Surveillance System (ISS).

Assessment and management of concussive injuries, and return-to-play decisions remain some of the most difficult responsibilities facing the sports medicine team. There are potentially serious complications of multiple or severe concussions, including second impact syndrome, postconcussive syndrome, or post-traumatic encephalopathy. Though there is some controversy as to the existence of second impact syndrome, in which a second impact with potentially catastrophic consequences occurs before the full recovery after a first insult, the risks include severe cognitive compromise and death. Other associated injuries which can occur in the setting of concussion include seizures, cervical spine injuries, skull fractures and/or intracranial bleed. Due to the serious nature of mild traumatic brain injury, and these serious potential complications, it is imperative that the health care professionals taking care of athletes are able to recognize, evaluate and treat these injuries in a complete and progressive fashion.

Concussion or mild traumatic brain injury (mTBI) has been defined as "a complex pathophysiological



Concussion or Mild Traumatic Brain Injury

process affecting the brain, induced by traumatic biomechanical forces." Although concussion most commonly occurs after a direct blow to the head, it can occur after a blow elsewhere that is transmitted to the head. Concussions can be defined by the clinical features, pathophysiological changes and / or biomechanical forces that occur, and these have been described in the literature. The neurochemical and neurometabolic changes that occur in concussive injury have been elucidated, and exciting research is underway describing the genetic factors that may play a role in determining which individuals are at an increased risk for sustaining brain injury.

Most commonly, concussion is characterized by the rapid onset of cognitive impairment that is self limited and spontaneously resolves. The acute symptoms of concussion, listed below, are felt to reflect a functional disturbance in cognitive function instead of structural abnormalities, which is why diagnostic tests such as magnetic resonance imaging (MRI) and computerized tomography (CT) scans are most often normal. These studies may have their role in assessing and evaluating the head-injured athlete whenever there is concern for the associated injuries of skull fracture, intracranial bleeding and seizures, when there is concern for structural

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The sideline evaluation of the brain-injured athlete should include an assessment of airway, breathing, and circulation (ABC's), followed by an assessment of the cervical spine and skull for associated injury. The sideline evaluation should also include a neurological and mental status examination and some form of brief neurocognitive testing to assess memory function and attention. This can be in the form of questions regarding the particular practice or competition, previous game results, and remote and recent memory, and questions

to test the athlete's recall of words, months of the year backwards and calculations. Special note should be made regarding the presence and duration of retrograde or anterograde amnesia, and the presence and duration of confusion. A timeline of injury and the presence of symptoms should be noted. These sideline tests should be performed and repeated as necessary, but do not take the place of other comprehensive neuropsychological tests.

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Inability to focus	Vacant stare
Headache	Emotional lability
Nausea/Vomiting	Dizziness
Excessive drowsiness	Slurred/incoherent speech

Concussion or Mild Traumatic Brain Injury

observation or hospital admission should be considered.

Follow-up care and instructions should be given to the athlete, and ensuring that they are not left alone for an initial period of time should be considered. Athletes should avoid alcohol or other substances that will impair their cognitive function, and also avoid aspirin and other medications that can increase their risk of bleeding.

As mentioned previously, conventional imaging studies such as MRI and CT scans are usually normal in mTBI. However, these studies are considered an adjunct when any structural lesion, such as an intracranial bleed or fracture, is suspected. If an athlete experiences prolonged loss of consciousness, confusion, seizure activity, focal neurologic deficits or persistent clinical or cognitive symptoms, then additional testing may be indicated.

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presenting to an emergency department with closed head injury, and has also been demonstrated in athletes with concussion (Lovell '99). It has been further demonstrated that retrograde amnesia (RGA), post-traumatic amnesia (PTA), and the duration of confusion and mental status changes longer than five minutes may be more sensitive indicators of injury severity (Collins '03). More recent grading systems have been published which attempt to take into account the expanding research in the field of mTBI in athletes. Though it is useful to become familiar with these guidelines, it is important to remember that many of these injuries are best treated in an individual fashion (Cantu '01, Vienna Conference, NATA '04).

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Given these limitations, it is essential that the medical care team treating athletes continue to rely on its clinical skills in evaluating the head-injured athlete to the best of its ability. It is essential that no athlete be allowed to return to participation when any symptoms, including mild headache, persist. It has also been recommended that for any injury that involves significant symptoms, long duration of symptoms or difficulties with memory function (either retrograde or antegrade), not be allowed to return to play during the same day of competition. The duration of time that an athlete should be kept out of physical activity is unclear, and in most instances, individualized return-to-play decisions should be made. These decisions will often depend on the clinical symptoms, previous history of concussion and severity of previous concussions. Additional factors include the sport, position, age, support system for the athlete and the overall "readiness" of the athlete to return to sport.

Table 2
SYMPTOMS OF POST-CONCUSSION SYNDROME

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Personality changes	Phono/photophobia
Headaches	Sleep disturbances
Dizziness	Sleep disturbances
Lack of concentration	Depressed mood
Poor attention	Anxiety

Concussion or Mild Traumatic Brain Injury

Once an athlete is completely asymptomatic, the return-to-play progression should occur in a step-wise fashion with gradual increments in physical exertion and risk of contact. After a period of remaining asymptomatic, the first step is an "exertional challenge" in which the athlete exercises for 15 to 20 minutes in an activity such as biking or running in which he/she increases his/her heart rate and breaks a sweat. If he/she does not experience any symptoms, this can be followed by a steady increase in exertion, followed by return-to-sport-specific activities that do not put the athlete at risk for contact. Examples include dribbling a ball

1. Heads Up: Concussion Tool Kit

CDC. Available at www.cdc.gov/ncipc/tbi/coaches_tool_kit.htm.

2. Heads Up Video

NATA. Streaming online at www.nata.org/consumer/headsup.htm.

or shooting, stickwork or passing, or other activities. This allows the athlete to return to the practice setting, albeit in a limited role. Finally, the athlete can be progressed to practice activities with limited contact and finally full contact. How quickly one moves through this progression remains controversial.

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EXHIBIT 23

IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF ILLINOIS
EASTERN DIVISION

ADRIAN ARRINGTON, DEREK OWENS)
and ANGELA PALACIOS,)
individually and on behalf of)
all others similarly situated,)

Plaintiffs,)

-vs-

NATIONAL COLLEGIATE ATHLETIC)
ASSOCIATION,)

Defendant.)

) CIVIL NO.
) 11-cv-06356

The deposition upon oral examination of
DAVID KLOSSNER, a witness produced and sworn
before me, Diane Zeyen, RPR, a Notary Public in
and for the County of Hamilton, State of Indiana,
taken on behalf of the Plaintiffs, at the offices of
Krieg DeVault, One Indiana Square, Suite 2800,
Indianapolis, Marion County, Indiana, on the 8th day
of November, 2012, at 9:00 a.m., pursuant to the
Federal Rules of Civil Procedure with written notice
as to time and place thereof.

1 medicine topics.

2 Q Did you say developing content?

3 A Policies.

4 Q Policies. Thank you.

5 And since you used the term "guidelines,"
6 is it fair to say that the guidelines that are
7 present in the Sports Medicine Handbook are not
8 mandatory?

9 A They are not considered mandatory.

10 Q Regarding the hosted webinar that you
11 referenced, do you recall offhand the topic of
12 that webinar?

13 A It was on concussion and concussion management
14 mainly.

15 Q And was that a one-time showing or something
16 that was continuously available on-line?

17 A It was shown live and continuously available
18 on-line to today.

19 Q Through the ncaa.org website?

20 A Correct.

21 Q Would you walk me through the basic process by
22 which Sports Medicine Handbook sections are
23 created?

24 A The handbook is reviewed by the committee of

1 competitive safeguards at their meetings. They
2 have two a year. And the committee members
3 decide guidelines which need revision or review.

4 The committee members work with office
5 staff to accomplish the review and any revisions
6 and bring it back to committee for final
7 approval and then it gets published.

8 Q How often are the handbooks published?

9 A The handbook is published yearly, annually.

10 Q Is there a typical time frame that that
11 production falls in?

12 A The final print is typically July, August.

13 Q When does the committee on the safeguard
14 committee meet?

15 You said twice a year. What times of the
16 year do they meet?

17 A They meet in December and June typically.

18 Q If the safeguard committee decides in December
19 to make an update to the handbook, does the
20 update remain dormant until published sometime
21 in July or August?

22 A The committee has a flexibility to publish
23 on-line, if need be. It would be prior to that
24 date.

EXHIBIT 24

NCAA



2013-14 NCAA[®] Sports Medicine Handbook



PREFACE

The health and safety principle of the National Collegiate Athletic Association's constitution provides that it is the responsibility of each member institution to protect the health of, and provide a safe environment for, each of its participating student-athletes. To provide guidance in accomplishing this objective and to assist member schools in developing a safe intercollegiate athletics program, the NCAA Committee on Competitive Safeguards and Medical Aspects of Sports creates a Sports Medicine Handbook. The committee has agreed to formulate guidelines for sports medicine care and protection of student-athletes' health and safety for topics relevant to intercollegiate athletics, applicable to a large population of student-athletes, and not accessible in another easily obtainable source.

This handbook consists of guidelines for each institution to consider in developing sports medicine policies appropriate for its intercollegiate athletics program. In some instances, accompanying best practices, and references to sports medicine or legal resource materials are provided for further guidance. These recommendations are not intended to establish a legal standard of care that must be strictly adhered to by member institutions. In other words, these guidelines are not mandates that an institution is required to follow to avoid legal liability or disciplinary sanctions by the NCAA. However, an institution has a legal duty to use reasonable care in conducting its intercollegiate athletics program, and guidelines may constitute some evidence of the legal standard of care.

These general guidelines are not intended to supersede the exercise of medical judgment in specific situations by a member institution's sports medicine staff. In all instances, determination of the appropriate care and treatment of student-athletes must be based on the clinical judgment of the institution's team physician or athletic health care team that is consistent with sound principles of sports medicine care. These recommendations provide guidance for an institution's athletics administrators and sports medicine staff in protecting student-athletes' health and safety, but do not establish any rigid requirements that must be followed in all cases.

This handbook is produced annually, sent to head athletic trainers, and made available online to directors of athletics, senior woman administrators, faculty athletics representatives, athletic trainers, team physicians, life skills coordinators and student-athlete advisory committees at each member institution, as well as to conference commissioners. Please view the NCAA Sports Medicine Handbook as a tool to help your institution develop its sports medicine administrative policies. Such policies should reflect a commitment to protecting your student-athletes' health and well-being as well as an awareness of the guidelines set forth in this handbook.

EXHIBIT 25



MEMORANDUM

April 29, 2010

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Indianapolis, Indiana 46206
Telephone: 317/917-6222

Shipping/Overnight Address:
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Indianapolis, Indiana 46202

www.ncaa.org

TO: NCAA Head Athletic Trainers.

FROM: Debra Runkle, chair
NCAA Committee on Competitive Safeguards and
Medical Aspects of Sports (CSMAS).

SUBJECT: Concussion Management Plan.

The NCAA is committed to the prevention, identification, evaluation and management of concussions. The NCAA's latest step in the process to develop a consistent association-wide approach to concussion management has come from the NCAA Executive Committee. The Executive Committee adopted the following policy for institutions across all three divisions.

"Institutions shall have a concussion management **plan on file** such that a student-athlete who exhibits signs, symptoms or behaviors consistent with a concussion **shall be removed** from practice or competition and **evaluated** by an athletics healthcare provider with experience in the evaluation and management of concussion. Student-athletes diagnosed with a concussion **shall not return** to activity for the remainder of that day. Medical clearance shall be determined by the team physician or their designee according to the concussion management plan.

In addition, student-athletes must sign a statement in which they accept the responsibility for reporting their injuries and illnesses to the institutional medical staff, including signs and symptoms of concussions. During the review and signing process student-athletes should be presented with educational material on concussions."

The policy came from ongoing review of research data and discussions with the medical community. Determination of appropriate care and treatment of student-athletes injuries and illness are best handled through a local institutional medical model that has team physician oversight and direction. This model should focus on appropriate access to healthcare providers with the unchallengeable authority to determine management and return-to-play.

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Institutions should be prepared to respond to immediate emergency situations (e.g., intracranial hemorrhage, cardiac arrest, heat illness, exertional sickling, respiratory distress, spinal injury, fractures) as part of their emergency care plans for each venue but also the continued evaluation and care for non-emergency yet serious conditions (e.g., concussion, sprains, strains, bleeding, fractures). With this in mind, institutions should have both a written emergency plan as well as a written concussion management plan on file.

The committee reaffirms its recommendation from December 2009 that an athlete exhibiting an injury that involves significant symptoms, long duration of symptoms or difficulty with memory function should not be allowed to return to play during the same day of competition and expands upon it by stating a student-athlete diagnosed with a concussion should not return to activity for the remainder of that day. Student-athletes that sustain a concussion outside of their sport should be managed in the same manner as those sustained during sport activity. The student-athlete should be monitored for recurrence of symptoms both from physical exertion and also mental exertion, such as reading, phone texting, computer games, working on a computer, classroom work, or taking a test.

Also in December, the committee's recommendations reinforced medical policies that already are in place at many NCAA institutions while encouraging institutions to develop protocols under the direction of a physician for responding to possible concussions. To provide more guidance on protocol development, the CSMAS has approved a set of recommended best practices appropriate for the NCAA collegiate environment. The basic principles are based on the 2008 Consensus Statement on Concussion in Sport 3rd International Conference held in Zurich and the NCAA Sports Medicine Handbook with expanded language that reinforces the Executive Committee's adopted policy.

As noted in the handbook guideline on concussions, neuropsychological testing has proven to be an effective tool in assessing neurocognitive changes following concussion and can serve as an important component of an institution's concussion management plan. However, neuropsychological tests should not be used as a standalone measure to diagnose the presence or absence of a concussion and should not be used in lieu of a comprehensive assessment by qualified healthcare providers.

Healthcare professionals should assume a concussion when unsure and waiting for final diagnosis. When in doubt, sit the athlete out. Institutions should ensure healthcare professionals attain continuing education on concussion evaluation and management annually. Structured and documented education of student-athletes and coaches is also recommended to improve the success of the recognition and referral components of a consistent concussion management program.

Educational materials on concussions can be found at www.ncaa.org/health-safety. A webinar is planned for medical staff this summer. The following recommended best practices should be considered by each institution for developing a plan to address concussion in sport.

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Recommended Best Practices for a Concussion Management Plan for all NCAA Institutions

1. Institutions shall require student-athletes to sign a statement in which student-athletes accept the responsibility for reporting their injuries and illnesses to the institutional medical staff, including signs and symptoms of concussions. During the review and signing process student-athletes should be presented with educational material¹ on concussions.
2. Institutions should have on file and annually update an emergency action plan^{2,3,4} for each athletics venue to respond to student-athlete catastrophic injuries and illnesses, including but not limited to concussions, heat illness, spine injury, cardiac arrest, respiratory distress (e.g. asthma), and sickle cell trait collapses. All athletics healthcare providers and coaches should review and practice the plan at least annually.
3. Institutions should have on file an appropriate healthcare plan⁵ that includes equitable access to athletics healthcare providers for each NCAA sport.
4. Athletics healthcare providers should be empowered to have the unchallengeable authority to determine management and return-to-play of any ill or injured student-athlete, as he or she deems appropriate. For example, a countable coach should not serve as the primary supervisor for an athletics healthcare provider nor should they have sole hiring or firing authority over that provider.
5. Institutions shall have on file a written team physician-directed concussion management plan^{2,6} that specifically outlines the roles of athletics healthcare staff (e.g., physician, certified athletic trainer, nurse practitioner, physician assistant, neuropsychologist). In addition, the following components have been specifically identified for the collegiate environment:
 - a. Institutions should ensure coaches have acknowledged they understand the concussion management plan, their role within the plan and that they received education¹ about concussions.
 - b. Athletics healthcare providers should practice within the standards as established for their professional practice (e.g., physician⁷, certified athletic trainer⁸, nurse practitioner, physician assistant, neurologist⁹, neuropsychologist¹⁰).
 - c. Institutions should record a baseline assessment^{6,10,11,12} for each student-athlete prior to the first practice in the sports of baseball, basketball, diving, equestrian, field hockey, football, gymnastics, ice hockey, lacrosse, pole vaulting, rugby, soccer, softball, water polo, and wrestling, at a minimum. The same baseline assessment tools should be used post-injury at appropriate time intervals. The baseline assessment should consider one or more of the following areas of assessment.

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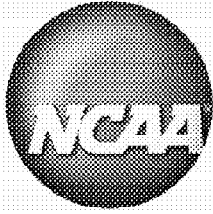
- 1) At a minimum, the baseline assessment should consist of the use of a symptoms checklist and standardized cognitive and balance assessments (e.g., SAC; SCAT; SCAT II⁶; Balance Error Scoring System (BESS); Neurocom).
 - 2) Additionally, neuropsychological testing (e.g., computerized, standard paper and pencil) has been shown to be effective in the evaluation and management of concussion. The development and implementation of a neuropsychological testing program should be performed in consultation with a neuropsychologist. Ideally, post injury neuropsychological test data should be interpreted by a neuropsychologist.
- d. When a student-athlete shows any signs, symptoms or behaviors consistent with a concussion, the athlete shall be removed from practice or competition and evaluated by an athletics healthcare provider with experience in the evaluation and management of concussion.
 - e. A student-athlete diagnosed with a concussion shall be withheld from the competition or practice and not return to activity for the remainder of that day.
 - f. The student-athlete should receive serial monitoring for deterioration. Athletes should be provided with written instructions upon discharge; preferably with a roommate, guardian, or someone that can follow the instructions.
 - g. The student-athlete should be evaluated by a team physician as outlined within the concussion management plan. Once asymptomatic and post-exertion assessments are within normal baseline limits, return to play should follow a medically supervised stepwise process.
 - h. Final authority for Return-to-Play¹³ shall reside with the team physician or the physician's designee.
6. Institutions should document the incident, evaluation, continued management, and clearance of the student-athlete with a concussion.
 7. Although sports currently have rules in place; athletics staff, student-athletes and officials should continue to emphasize that purposeful or flagrant head or neck contact in any sport should not be permitted and current rules of play should be strictly enforced.

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EXHIBIT 26



MEMORANDUM

August 13, 2010

TO: NCAA Division II Directors of Athletics.

FROM: Kathleen Brasfield
Chair, Division II Management Council.

SUBJECT: Legislative Requirement—Concussion Management Plan—
Effective August 16, 2010.

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During the August 12 NCAA Division II Presidents Council meeting, the Council used its emergency authority (per Constitution 5.3.1.1.2) to adopt legislation that requires all active Division II member institutions, effective August 16, 2010, to have a concussion management plan for their student-athletes. The exact language of the legislation is below.

The Division I Board of Directors used its emergency authority during its August 12 meeting to require all Division I member institutions, effective immediately, to have a concussion management plan. Further, the Division III Management Council adopted noncontroversial legislation at its July meeting to require all Division III member institutions, effective immediately, to have a concussion management plan. Thus, all three divisions have adopted the legislation.

The legislation is in response to a policy on concussions that was adopted by the NCAA Executive Committee in April. This policy was communicated to the membership at-large, including athletic trainers, via various communications and NCAA news articles following the adoption of the policy by the Executive Committee.

Concussion Management Plan Legislation

3.2.4.17 Concussion Management Plan. An active member institution shall have a concussion management plan for its student-athletes. The plan shall include, but is not limited to, the following:

- (a) An annual process that ensures student-athletes are educated about the signs and symptoms of concussions. Student-athletes must acknowledge that they have received information about the signs and symptoms of concussions and that they have a responsibility to report concussion related injuries and illnesses to a medical staff member;

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- (b) A process that ensures a student-athlete who exhibits signs, symptoms or behaviors consistent with a concussion shall be removed from athletics activities (e.g., competition, practice, conditioning sessions) and evaluated by a medical staff member (e.g., sports medicine staff, team physician) with experience in the evaluation and management of concussions;
- (c) A policy that precludes a student-athlete diagnosed with a concussion from returning to athletic activity (e.g., competition, practice, conditioning sessions) for at least the remainder of that calendar day; and
- (d) A policy that requires medical clearance for a student-athlete diagnosed with a concussion to return to athletics activity (e.g., competition, practice, conditioning sessions) as determined by a physician (e.g., team physician) or the physician's designee.

3.2.4.17.1 Effect of Violation. A violation of Constitution 3.2.4.17 shall be considered an institutional violation per Constitution 2.8.1; however, the violation shall not affect the student-athlete's eligibility.

Rationale for the Legislation

The proposal outlines a consistent Association-wide approach to concussion management as recommended by the Executive Committee and adopted as policy in April 2010. This proposal demonstrates the NCAA's continued commitment to the prevention, identification, evaluation and management of concussions. The development of a concussion management plan at the institutional level, that includes the protocol under the discretion of a physician for responding to possible concussions, is in the best interest of student-athlete well-being and can lessen the chances of further harm to a student-athlete's health. Further, a concussion management plan, in addition to the institution's sports medicine policies for the care of its student-athletes, will assist with the continued evaluation and care for student-athletes who suffer concussions. Determination of appropriate care and treatment of a student-athlete's injuries and illness is best handled through an institutional medical model that has physician oversight and direction. This model should focus on appropriate access to healthcare providers with the unchallengeable authority to determine management and return to play following a concussion. Lastly, requiring each institution to engage student-athletes in understanding their risks and acknowledge that they understand these risks, as well as their responsibility for reporting their injuries and illnesses, including signs and symptoms of concussions, will help to ensure that student-athletes are keenly aware of the potential harmful effects of concussions on their health.

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Educational Materials

The NCAA Health and Safety website has educational materials related to concussions that are helpful for administrators, athletic trainers, coaches and student-athletes.

Information specific to concussions, may be found at the following link:

http://www.ncaa.org/wps/portal/ncaahome?WCM_GLOBAL_CONTEXT=/ncaa/ncaa/academics+and+athletes/personal+welfare/health+and+safety/concussion or by logging on to the membership side of ncaa.org and following the links from www.ncaa.org/health-safety.

Information on the concussions educational webpage includes a webinar; videos, information from the NCAA Sports Medicine Handbook; sample plans and forms; educational materials for coaches and student-athletes; sport-specific posters and much more....

Institutions are encouraged to work with all appropriate personnel (e.g., athletics administrators, athletics trainers, team physicians, coaches, legal counsel) to ensure appropriate plans and medical procedures are in place.

KB:rcr

cc NCAA Division II Senior Woman Administrators
 NCAA Division II Conference Commissioners
 Selected NCAA Staff Members.

EXHIBIT 27

SPECIAL COMMUNICATIONS
Team Physician Consensus Statement

Concussion (Mild Traumatic Brain Injury) and the Team Physician: A Consensus Statement*

DEFINITION

Concussion or mild traumatic brain injury (MTBI) is a pathophysiological process affecting the brain induced by direct or indirect biomechanical forces.

Common features include:

- Rapid onset of usually short lived neurological impairment, which typically resolves spontaneously.
- Acute clinical symptoms that usually reflect a functional disturbance rather than structural injury.
- A range of clinical symptoms that may or may not involve loss of consciousness (LOC).
- Neuroimaging studies that are typically normal.

GOAL

The goal is to assist the team physician in providing optimal medical care for the athlete with concussion.

To accomplish this goal, the team physician should have knowledge of and be involved with:

- Epidemiology
- Pathophysiology
- Game day evaluation and treatment
- Post game day evaluation and treatment
- Diagnostic imaging
- Management principles
- Return to play
- Complications of concussion
- Prevention

**Editor's Note:* The Team Physician Consensus Statement was published in the November 2005 *Medicine & Science in Sports & Exercise*® without two final corrections. The corrected statement is published here in its entirety.

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MEDICINE & SCIENCE IN SPORTS & EXERCISE®

DOI: 10.1249/01.mss.0000202025.48774.31

SUMMARY

This document provides an overview of select medical issues that are important to team physicians who are responsible for athletes with concussion. It is not intended as a standard of care, and should not be interpreted as such. This document is only a guide, and as such, is of a general nature, consistent with the reasonable, objective practice of the healthcare professional. Individual treatment will turn on the specific facts and circumstances presented to the physician. Adequate insurance should be in place to help protect the physician, the athlete, and the sponsoring organization.

This statement was developed by a collaboration of six major professional associations concerned about clinical sports medicine issues; they have committed to forming an ongoing project based alliance to bring together sports medicine organizations to best serve active people and athletes. The organizations are: American Academy of Family Physicians, American Academy of Orthopaedic Surgeons, American College of Sports Medicine, American Medical Society for Sports Medicine, American Orthopaedic Society for Sports Medicine, and the American Osteopathic Academy of Sports Medicine.

EXPERT PANEL

Stanley A. Herring, M.D., Chair, Seattle, Washington
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Douglas B. McKeag, M.D., Indianapolis, Indiana
Robert Pallay, M.D., Hillsborough, New Jersey
Margot Putukian, M.D., Princeton, New Jersey

INTRODUCTION

It is *essential* the team physician understand:

- The recognition and evaluation of the athlete with concussion.
- Management and treatment of the athlete with concussion be individualized.

- The factors involved in making return-to-play (RTP) decisions after injury should be based on clinical judgment.
- A game-day medical plan specific to concussion injuries be developed.
- The need for documentation.
- There is a paucity of well-designed studies of concussion and its natural history.

It is *desirable* the team physician:

- Coordinate a systematic approach for the treatment of the athlete with concussion.
- Identify risk factors and implement appropriate treatment.
- Understand the potential sequelae of concussive injuries.
- Understand prevention strategies.

EPIDEMIOLOGY

- Concussions occur commonly in helmeted and non-helmeted sports, and account for a significant number of time loss injuries.
- Published reports indicate concussion injuries occur at a rate of:
 - 0.14 3.66 injuries per 100 player seasons at the high school level, accounting for 3 5% of injuries in all sports
 - 0.5 3.0 injuries per 1,000 athlete exposures at the collegiate level.
- Self-report data suggests significantly higher incidence of concussion.
- Because of under recognition and/or under reporting, the incidence of concussion and its sequelae is unknown.

PATHOPHYSIOLOGY

- Metabolic changes that occur in the animal model, and thought to occur in humans include:
 - Alterations in intracellular/extracellular glutamate, potassium and calcium
 - A relative decrease in cerebral blood flow in the setting of an increased requirement for glucose (i.e., increased glycolysis). This mismatch in the metabolic supply and demand may potentially result in cell dysfunction and increase the vulnerability of the cell to a second insult.

GAME-DAY EVALUATION AND TREATMENT

It is *essential* the team physician:

- Implement the game-day medical plan specific to concussion.
- Understand the indications for cervical spine immobilization and emergency transport.

On-Field

- Evaluate the injured athlete on-the-field in a systematic fashion:

TABLE 1. Selected acute signs and symptoms suggestive of concussion.

Cognitive	Somatic	Affective
Confusion	Headache	Emotional lability
Posttraumatic amnesia (PTA)	Fatigue	Irritability
Retrograde amnesia (RGA)	Disequilibrium, dizziness	
Loss of consciousness (LOC)	Nausea/vomiting	
Disorientation	Visual disturbances	
Feeling 'in a fog,' 'zoned out'	(photophobia, blurry/double vision)	
Vacant stare	Phonophobia	
Inability to focus		
Delayed verbal and motor responses		
Slurred/incoherent speech		
Excessive drowsiness		

- Assess for adequate airway, breathing, and circulation (ABC's)
- Followed by focused neurological assessment emphasizing mental status, neurological deficit, and cervical spine status
- Determine initial disposition (emergency transport vs sideline evaluation)

Sideline

- Obtain a more detailed history and perform a more detailed physical examination.
- Assess for cognitive, somatic, and affective signs and symptoms of acute concussion (see Table 1), with particular attention to retrograde amnesia (RGA), posttraumatic amnesia (PTA), and more than brief LOC (minutes, not seconds), because of their prognostic significance.
- Not leave the player unsupervised
- Perform serial neurological assessments
- Determine disposition for symptomatic and nonsymptomatic players, including postinjury follow-up (options include return-to-play, home with observation, or transport to hospital).
- Provide postevent instructions to the athlete and others (e.g., regarding alcohol, medications, physical exertion and medical follow-up).

It is *desirable* the team physician:

On-Field

- Have a plan to protect access to the injured player
- Have emergency medical personnel on-site
- Have medical supplies on-site for rescue, immobilization and transportation [See "Sideline Preparedness for the Team Physician: A Consensus Statement"; (1)]

Sideline

- Delineate the mechanism of injury.
- Perform a more detailed assessment of cognitive function (e.g., memory, calculations, attention span, concentration, speed of information processing).
- Coordinate the care and follow-up of the athlete with concussion.

- Discuss status of athlete with parents, caregivers, certified athletic trainers and coaching staff within disclosure regulations.

POST-GAME-DAY EVALUATION AND TREATMENT

It is *essential* the team physician:

- Obtain a comprehensive history of the current concussion, and any previous concussion.
- Perform a physical examination, including a detailed neurological/cognitive evaluation.
- Determine the need for further evaluation and consultation.
- Determine return-to-play status.

It is *desirable* the team physician:

- Coordinate the care and follow-up of the athlete.
- Understand the indications and limitations of neuropsychological testing.
 - Postinjury neuropsychological test data are more useful if compared to the athlete's preinjury baseline.
 - It is unclear what type and content of test data are most valuable.
 - It is only one component of the evaluation process.
- Educate the athlete and others about concussion.
- Discuss status of athlete with parents, caregivers, certified athletic trainers and coaching staff within disclosure regulations.

DIAGNOSTIC IMAGING

It is *essential* the team physician understand:

- The limited value of plain skull radiographs.
- Indications of advanced imaging, such as CT or magnetic resonance imaging (MRI), to assess associated injuries including intracranial bleed, cerebral edema, diffuse axonal injury, and/or skull fracture.
- Indications for the use of cervical imaging when cervical spine injury is suspected.

It is *desirable* the team physician:

- Review the results of the imaging studies and/or ancillary tests such as facial bone radiographs.

MANAGEMENT PRINCIPLES

It is *essential* the team physician understand:

- Brief LOC (seconds, not minutes) is associated with specific early deficits, but does not predict the severity of injury; therefore classification systems or RTP guidelines based solely on brief LOC are not accurate.
- RGA, PTA, as well as the number and duration of additional signs and symptoms, are more accurate in predicting severity and outcome. RTP guidelines which address these issues are more useful.

- Duration of symptoms is a major factor in determining severity, therefore severity of injury should not be determined until all signs and symptoms have cleared.
- The treatment of and the RTP decision for the athlete with concussion must be individualized.

It is *desirable* the team physician:

- Coordinate a team for concussion management (e.g., physicians, certified athletic trainers, neuropsychologists, emergency response personnel).
- Discuss status of athlete with parents, caregivers, certified athletic trainers and coaching staff within disclosure regulations.

RETURN-TO-PLAY (RTP) DECISION

The RTP decision should be individualized, and not based on a rigid timeline. The team physician is ultimately responsible for the RTP decision. [See "The Team Physician and Return-To-Play Issues: A Consensus Statement"; (2).]

It is *essential* the team physician understand:

Same-Day RTP

- There is agreement that athletes with significant, persistent or worsening signs and symptoms (e.g., abnormal neurological examination, ongoing RGA or PTA, prolonged LOC) should not RTP.
- For other athletes with concussion, significant controversy exists for a same-day RTP decision and no conclusive evidence-based data are available. Areas of controversy include:
 - Returning an athlete with any symptoms to play.
 - Returning an athlete with fully resolved symptoms to play.
 - Certain symptoms, even if resolved, are contraindications to same-day RTP (e.g., any LOC, PTA, and RGA).
 - The duration and severity of symptoms are the determining factors of RTP.
- It is the safest course of action to hold an athlete out.

Post-Game-Day RTP

- Determine the athlete is asymptomatic at rest before resuming any exertional activity.
 - Amnesia may be permanent.
- Utilize progressive aerobic and resistance exercise challenge tests before full RTP.
- Consider factors which may affect RTP, including:
 - Severity of the current injury
 - Previous concussions (number, severity, proximity)
 - Significant injury in response to a minor blow
 - Age (developing brain may react differently to trauma than mature brain)
 - Sport
 - Learning disabilities

- Understand contraindications for return to sport (e.g., abnormal neurological examination, signs or symptoms with exertion, significant abnormalities on cognitive testing or imaging studies).
- Controversy exists for postgame RTP decisions.

It is *desirable* the team physician:

Post-Game-Day RTP

- Coordinate a team to implement progressive aerobic and resistance exercise challenge tests before full RTP.
- Recognize challenging cognitive effort may exacerbate symptoms of concussion and retard recovery.
- Discuss status of athlete with parents, caregivers, teachers, certified athletic trainers and coaching staff within disclosure regulations.
- Consider neuropsychological testing.

COMPLICATIONS OF CONCUSSION

It is *essential* the team physician:

- Understand cumulative concussions may increase risk for subsequent concussions.
- Determine when the athlete may RTP.

It is also *essential* the team physician understand other complications may occur, including:

- Convulsive motor phenomena
 - Tonic posturing or convulsive movements within seconds of the concussion
 - Dramatic, but usually benign
 - Require no management beyond on-field ABCs
 - No anticonvulsant therapy required
- Posttraumatic seizures
 - Seizure occurs days to months after concussion
 - Does require seizure management and precautions
 - Usually requires anticonvulsant therapy
- Postconcussion syndrome
 - Persistent postconcussion symptoms lasting months
 - Indicator of concussion severity
 - Precludes RTP while present
- Second impact syndrome
 - Occurs within minutes of concussion in athlete still symptomatic from prior brain injury

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- Prior brain injury can be earlier in same event
- Vascular engorgement leads to massive increase in intracranial pressure and brain herniation
- Usually with severe brain damage or death
- May occur with associated small subdural hematoma
- Except for boxing, all cases in literature in adolescents (<20 yr old)

It is *desirable* the team physician:

- Coordinate assessment and treatment of complications
- Discuss status of athlete with parents, caregivers, certified athletic trainers and coaching staff within disclosure regulations.

PREVENTION

Concussions cannot be completely prevented.

It is *essential* the team physician understand:

- Helmet use decreases the incidence of skull fracture and major head trauma, but does not prevent, and may actually increase, the incidence of concussion.
- Improper use of the head and improper fit of helmet or protective equipment may increase the risk of concussion.
- There are rules to limit concussion (e.g., spearing, head-to-head contact, leading with the head).

It is *desirable* the team physician:

- During the preparticipation evaluation, obtain a concussion history.
- Discuss the enforcement of rules to limit concussion with coaching staff and officials before practice and competition.
- Discuss with players and coaches techniques which may increase the risk of concussion.
- Support the use of mouth guards to decrease the risk of dental and facial injury, although the protection they provide to concussion risk is unclear.
- Educate athletes, parents, and coaches on the importance of reporting symptoms of concussion to limit complications.
- Educate athletes, parents, and coaches regarding the escalation of violence in sports.



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EXHIBIT 28

Concussion in sport

Summary and agreement statement of the first International Conference on Concussion in Sport, Vienna 2001*

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Recommendations for the improvement of safety and health of athletes who may suffer concussive injuries

In November 2001, the first International Symposium on Concussion in Sport was held in Vienna, Austria. This symposium was organised by the International Ice Hockey Federation (IIHF), the Federation Internationale de Football Association Medical Assessment and Research Centre (FIFA, F-MARC), and the International Olympic Committee Medical Commission (IOC).

The aim of the symposium was to provide recommendations for the improvement of safety and health of athletes who suffer concussive injuries in ice hockey, football (soccer), and other sports. To this end a range of experts were invited to address specific issues of epidemiology, basic and clinical science, grading systems, cognitive assessment, new research methods, protective equipment, management, prevention, and long term outcome, and to discuss a unitary model for understanding concussive injury. At the conclusion of the conference, a small group of experts were given a mandate by the conference delegates and organising bodies to draft a document describing the agreement position reached by those in attendance at that meeting. For the purpose of this paper, this group will be called the Concussion in Sport Group (CISG).

INTRODUCTION

This review seeks to summarise the findings of the Vienna conference and to provide a working document that will be widely applicable to sport related concussion. This document is developed for use by doctors, therapists, health professionals, coaches, and other people involved in the care of injured athletes, whether at the recreational, elite, or professional level.

During the course of the symposium, a persuasive argument was made that a comprehensive systematic approach to concussion would be of potential benefit to aid the injured athlete and direct

management decisions.¹ This protocol represents a work in progress, and, as with all other guidelines or proposals, it must undergo revision as new information is added to the current literature and understanding of this injury.

The concussion in sport protocol includes:

- (1) Clinical history
- (2) Evaluation
- (3) Neuropsychological testing
- (4) Imaging procedures
- (5) Research methods
- (6) Management and rehabilitation
- (7) Prevention
- (8) Education
- (9) Future directions
- (10) Medicolegal considerations

A REVISED DEFINITION OF CONCUSSION

Over 35 years ago, the committee on head injury nomenclature of the Congress of Neurological Surgeons proposed a "consensus" definition of concussion.² The American Medical Association and the International Neurotraumatology Association subsequently endorsed this definition.³ This definition was recognised as having a number of limitations in accounting for the common symptoms of concussion. In addition, there was an inability to include relatively minor impact injuries that result in persistent physical and/or cognitive symptoms. Seeking to transcend these limitations, the CISG has developed the following definition of concussion.

"Concussion is defined as a complex pathophysiological process affecting the brain, induced by traumatic biomechanical forces. Several common features that incorporate clinical, pathological, and biomechanical injury constructs that may be used in defining the nature of a concussive head injury include:

(1) Concussion may be caused by a direct blow to the head, face, neck, or elsewhere on the body with an "impulsive" force transmitted to the head.

(2) Concussion typically results in the rapid onset of short lived impairment of neurological function that resolves spontaneously.

(3) Concussion may result in neuropathological changes but the acute clinical symptoms largely reflect a functional disturbance rather than structural injury.

(4) Concussion results in a graded set of clinical syndromes that may or may not involve loss of consciousness. Resolution of the clinical and cognitive symptoms typically follows a sequential course.

(5) Concussion is typically associated with grossly normal structural neuroimaging studies.

THE CISG CONCUSSION PROTOCOL

Clinical history

Recognising the importance of a detailed concussion history and appreciating the fact that many athletes will not recognise all the concussions that they may have suffered in the past, a detailed concussion history is of value. The athlete currently at a high performance level in collision sport has seldom had the first concussion on presentation in the consultant's office. The history should include specific questions as to previous symptoms of a concussion, not just perceived number of past concussions.⁴ It is also worth noting that dependence on the recall of concussive injuries by teammates or coaches has been shown to be unreliable.⁵ The finding that there is increased risk of subsequent concussive injuries after a first concussion is documented, although the reasons for this remain controversial. The clinical history should also include information about all previous head, face, or neck injuries as these may have clinical relevance to the present injury. It is worth emphasising that, in the setting of faciomaxillary injuries, coexistent concussive injuries may be missed unless specifically assessed.

Specific questions about disproportionate impact and matching of symptom severity may allude to progressively increasing vulnerability to injury—that is, more pronounced persistent symptoms from smaller hits. The pathophysiological nature of this phenomenon remains unclear.

* This statement is being published simultaneously with the *Clinical Journal of Sport Medicine and the Physician and Sportsmedicine*.

Table 1 Scale of postconcussion symptoms

	Rating						
	None			Moderate			Severe
Headache	0	1	2	3	4	5	6
Nausea	0	1	2	3	4	5	6
Vomiting	0	1	2	3	4	5	6
Drowsiness	0	1	2	3	4	5	6
Numbness or tingling	0	1	2	3	4	5	6
Dizziness	0	1	2	3	4	5	6
Balance problems	0	1	2	3	4	5	6
Sleeping more than usual	0	1	2	3	4	5	6
Sensitivity to light	0	1	2	3	4	5	6
Sensitivity to noise	0	1	2	3	4	5	6
Feeling slowed down	0	1	2	3	4	5	6
Feeling like "in a fog"	0	1	2	3	4	5	6
Difficulty concentrating	0	1	2	3	4	5	6
Difficulty remembering	0	1	2	3	4	5	6
Trouble falling asleep	0	1	2	3	4	5	6
More emotional than usual	0	1	2	3	4	5	6
Irritability	0	1	2	3	4	5	6
Sadness	0	1	2	3	4	5	6
Nervousness	0	1	2	3	4	5	6
Other	0	1	2	3	4	5	6

Adapted from Lovell and Collins.¹³

One of the issues that was speculated upon at the conference was whether concussion represents a unitary phenomenon with a linear spectrum of injury severity or whether different concussion subtypes exist. These subtypes may represent differences in clinical manifestations (confusion, memory problems, loss of consciousness), anatomical localisation (cerebral *v* brainstem, for example), biomechanical impact (rotational *v* linear force), genetic phenotype (ApoE4 positive *v* ApoE4 negative), neuropathological change (structural injury *v* no structural injury), or an as yet undefined difference. These factors may operate independently or interact with each other. It is clear that the variations in clinical outcome from the same impact force require a more sophisticated approach to the understanding of this phenomenon than is currently available.⁶

The traditional approach to severe traumatic brain injury using loss of consciousness as the primary measure of injury severity has acknowledged limitations in assessing the severity of concussive injury. Findings in this field describe association of loss of consciousness with specific early deficits but does not necessarily imply severity. Further work in this area may help to explain these findings.⁷

There is renewed interest in the role of amnesia (anterograde/retrograde) and its manifestation of injury severity.⁸ Published evidence suggests that the nature, burden, and duration of the clinical postconcussive symptoms may be more important than previously recognised.⁹⁻¹¹

Concussion grading scales

The CISG recognised the strengths and weaknesses of several existing concus-

sion grading scales that attempt to characterise injury severity, but no single system was endorsed. It was the recommendation of the CISG that combined measures of recovery (see below) should be used to assess injury severity (and/or prognosis) and hence individually guide decisions on return to play.

In the absence of scientifically validated return to play guidelines, a clinical construct is recommended using an assessment of injury recovery and graded return to play. The protocol outlined below is adapted from the Canadian Academy of Sport Medicine (CASM) guidelines.¹² Sideline evaluation includes clinical evaluation of signs and symptoms, ideally using a standardised scale of postconcussion symptoms (table 1) for comparison purposes, and acute injury testing as described below under neuropsychological testing.

Evaluation

Sideline evaluation including neurological assessment and mental status testing is an essential component in the protocol. These evaluations are ideally developed in language translations for international sporting groups (an example of such a sideline evaluation developed at McGill University is available in English and French; for a copy, contact author KMJ). In the acute assessment of concussive injury—that is, concussion diagnosis—brief neuropsychological test batteries that assess attention and memory function have been shown to be practical and effective. Such tests include the Maddock's questions¹⁴ and the Standardised Assessment of Concussion (SAC).¹⁵ It is worth noting that standard orientation questions—for example, time, place, person—have been shown to

be unreliable in the sporting situation compared with memory assessment.^{14, 16}

It is recognised, however, that abbreviated testing paradigms are designed for rapid evaluation of concussion on the sidelines and are not meant to replace comprehensive neuropsychological testing, which is sensitive enough to detect subtle deficits that may exist beyond the acute episode.

Signs and symptoms of acute concussion

If any one of the following symptoms or problems is present, a head injury should be suspected, and appropriate management instituted. A player does not need to have lost consciousness to suffer a concussion.

(a) Cognitive features

Unaware of period, opposition, score of game

Confusion

Amnesia

Loss of consciousness

Unaware of time, date, place

(b) Typical symptoms

Headache

Dizziness

Nausea

Unsteadiness/loss of balance

Feeling "dinged" or stunned or "dazed"

"Having my bell rung"

Seeing stars or flashing lights

ringing in the ears

Double vision

Other symptoms such as sleepiness, sleep disturbance, and a subjective feeling of slowness and fatigue in the setting of an impact may indicate that a concussion has occurred or has not resolved.

(c) Physical signs

Loss of consciousness/impaired conscious state

Poor coordination or balance

Concussive convulsion/impact seizure

Gait unsteadiness/loss of balance

Slow to answer questions or follow directions

Easily distracted, poor concentration

Displaying unusual or inappropriate emotions, such as laughing or crying

Nausea/vomiting

Vacant stare/glassy eyed

Slurred speech

Personality changes

Inappropriate playing behavior—for example, running in the wrong direction

Appreciably decreased playing ability

Neuropsychological assessment after concussion

The application of neuropsychological testing in concussion has been shown to be of value and continues to contribute significant information in concussion evaluation.¹⁷ It has been shown that cognitive recovery may precede or follow resolution of clinical symptoms, suggesting that the assessment of cognitive function should be an important component in any return to play protocol.

In the consideration of injury recovery or return to play, such test strategies must assess the cognitive domains of information processing, planning, memory, and switching mental set. Numerous paradigms are in current use. Examples of these include paper and pencil tests (McGill ACE, SAC), condensed batteries (McGill ACE), comprehensive protocols administered by neuropsychologists (NHL, Australian football), and computerised test platforms—for example, IMPACT, CogSport, ANAM, Headminders.¹⁸

The consensus of the CISG was that neuropsychological testing is one of the cornerstones of concussion evaluation and contributes significantly to both understanding of the injury and management of the individual.

Overriding principles common to all neuropsychological test batteries is the need for and benefit of baseline preinjury testing and serial follow up. Recent work with computerised platforms, however, suggests that performance variability may be a key measure for diagnosis of acute concussion even in the absence of a baseline test. This strategy is currently the subject of continuing research. Inherent problems with most neuropsychological tests include the normal ranges, sensitivity and specificity of tests, and practice or learning effect, as well as the observation that players may return to baseline while still symptomatic.^{17, 19} In part, these may be a problem of the currently available pen and paper tests. Computerised testing using infinitely variable test paradigms may overcome these concerns. Computerised testing also has the logistical advantage that the tests may be administered by the team doctor or be web based rather than having to employ a neuropsychologist for a formal assessment. The strengths and weaknesses of such testing have been recently reviewed.¹⁸

The consensus of the CISG was that neuropsychological testing is one of the

cornerstones of concussion evaluation and contributes significantly to both understanding of the injury and management of the individual. Organised sport federations have access to and should attempt to employ such testing as appropriate. To maximise the clinical utility of such neuropsychological assessment, baseline testing is recommended.

Neuroimaging

It was recognised by the CISG that conventional structural neuroimaging is usually normal in concussive injury. Given that caveat, the following suggestions are made. Brain computed tomography (or where available magnetic resonance imaging (MRI) brain scan) contributes little to concussion evaluation, but should be used whenever suspicion of a structural lesion exists. Examples of such situations may include prolonged disturbance of conscious state, focal neurological deficit, seizure activity, or persistent clinical or cognitive symptoms.

Newer structural MRI modalities, including gradient echo, perfusion, and diffusion weighted imaging, have greater sensitivity for structural abnormalities; however, the lack of published studies as well as the absence of preinjury neuroimaging data limits the usefulness of this approach in clinical studies at the present time. In addition, the predictive value of various MRI abnormalities that may be incidentally discovered is not established at the present time. Promising new functional imaging—for example, PET/SPECT/fMRI—technologies, while producing some compelling findings, are still at the early stages of development.²⁰

Although neuroimaging may play a part in postconcussive return to play decisions or for the assessment of moderate to severe brain injury, it is not essential for otherwise uncomplicated concussive injury.

Research methods

A number of research protocols and data evaluating concussion injury assessment, injury susceptibility, and brain function after injury were presented at the Vienna conference. All of these techniques, while offering great potential for injury assessment, must be considered experimental at this time. As much as possible, elite and professional teams are well placed to contribute to these efforts through athlete recruitment for studies showing the scientific value of such approaches.

Electrophysiological recording (ERP, EEG) has shown reproducible abnormalities in the postconcussive state in brain function.¹⁹ Similarly, balance testing has shown impairment after injury, although the mechanism for this is not

established. Biochemical serum markers of brain injury (including S-100b, NSE, MBP) were proposed as means of detecting cellular damage if present.

Genetic phenotyping has been shown to be of benefit in traumatic brain injury. Published studies have shown that ApoE4 is a risk factor for adverse outcome following moderate to severe brain injury.²¹ Similarly ApoE4 has been shown to be a risk factor for the development of chronic traumatic encephalopathy in boxers.²² The significance of ApoE4 in concussion risk or injury outcome is unclear. Other published studies have noted the association of a particular calcium subunit gene abnormality with brain swelling after minor head trauma.²³

Such research is vital in contributing to the science of concussion and will potentially provide valuable information for such important issues as clinical management, return to play guidelines, and long term outcome. Therefore research should be continued and encouraged by sporting organisations.

Management and rehabilitation

Acute response

When a player shows ANY symptoms or signs of a concussion:

- (1) The player should not be allowed to return to play in the current game or practice.
- (2) The player should not be left alone; and regular monitoring for deterioration is essential.
- (3) The player should be medically evaluated after the injury.
- (4) Return to play must follow a medically supervised stepwise process.

A player should never return to play while symptomatic. "When in doubt, sit them out!"

Rehabilitation

It was the consensus of the CISG that a structured and supervised concussion rehabilitation protocol is conducive to optimal injury recovery and safe and successful return to play. The rehabilitation principles were common to all identified programmes and are outlined below. Important principles state that the athlete be completely asymptomatic and have normal neurological and cognitive evaluations before the start of the rehabilitation programme. Therefore the more prolonged the symptom duration, the longer the athlete will have sat out. The athlete will then proceed stepwise with gradual incremental increases in exercise duration and intensity, and pause or backtrack with any recurrence of concussive symptoms. It is appreciated that, although each step may take a minimum of one day, depending on the duration of symptoms, proceeding through each step may take longer in individual circumstances.

LEADERS

Return to play protocol

Return to play after a concussion follows a stepwise process:

- (1) No activity, complete rest. Once asymptomatic, proceed to level (2).
- (2) Light aerobic exercise such as walking or stationary cycling.
- (3) Sport specific training—for example, skating in hockey, running in soccer.
- (4) Non-contact training drills.
- (5) Full contact training after medical clearance.
- (6) Game play.

With this stepwise progression, the athlete should continue to proceed to the next level if asymptomatic at the current level. If any symptoms occur after concussion, the patient should drop back to the previous asymptomatic level and try to progress again after 24 hours.

Prevention

As part of the clinical history, it is advised that details of the protective equipment used at the time of injury be sought, for both recent and remote injuries. The benefit of this approach allows modification and optimisation of protective behaviour and an opportunity for education. That said, there are relatively few methods by which concussive brain injury may be minimised in sport. The brain is not an organ that can be conditioned to withstand injury. Thus, extrinsic mechanisms of injury prevention must be sought.

Rule changes and rule enforcement play a key role in reducing and preventing concussions.

Helmets have been proposed as a means of protecting the head and theoretically reducing the risk of brain injury. In sports in which high speed collisions can occur or which have the potential for missile injuries—for example, baseball—or for falls on to hard surfaces—for example, gridiron, ice hockey—there is published evidence that use of sport specific helmets reduces head injuries.³ For other sports such as soccer and rugby, no sport specific helmets have been shown to be of benefit in reducing rates of head injury.²⁴ Some believe that the use of protective equipment may deleteriously alter playing behaviour so that the athlete actually increases his or her risk of brain injury.²⁵

Although the use of correctly fitting mouthguards can reduce the rate of dental, orofacial, and mandibular injuries, the evidence that they reduce cerebral injuries is largely theoretical, and no clinical evidence for a beneficial effect in reducing concussion rates has yet been demonstrated clinically.²⁶

Consideration of rule changes, such as no head checking in ice hockey, to reduce the head injury rate may be appropriate where a clear cut mechanism is implicated in a particular sport. Similarly, rule enforcement is a critical aspect of such approaches and referees play an important role.

Conditioning of the neck muscles may be of value in reducing impact forces transmitted to the brain. Biomechanical concepts dictate that the energy from an impacting object is dispersed over the greater mass of an athlete if the head is held rigidly. Although attractive from a theoretical standpoint, there is little scientific evidence for the effectiveness of such measures.

Rule changes and rule enforcement play a key role in reducing and preventing concussions.

Education

As the ability to treat or reduce the effects of concussive injury after the event is minimal, education of athletes, colleagues, and those working with them, as well as the general public is a mainstay of progress in this field. Athletes and their healthcare providers must be taught how to detect concussion, its clinical features, assessment techniques, and principles of safe return to play. Methods to improve education including various web based resources (for example, www.concussionsafety.com), educational videos, outreach programmes, concussion working groups, and the support and endorsement of enlightened sport groups such as FIFA, IOC, and IIHF who initiated this endeavour have enormous value and must be pursued vigorously.

The promotion of fair play and respect for opponents are ethical values that should be encouraged in all sports and sporting associations. Similarly coaches, parents, and managers play an important part in ensuring these values are implemented on the field of play.

Future directions

Efforts to evaluate long term outcome and any association with repeated concussion, molecular markers, imaging, and functional deficits must guide continuing investigation in this work. Efforts to expand knowledge of injury that may or may not be associated with particular manoeuvres inherent to the game, such as heading in soccer, must be elucidated.

A proposal was made that this concussion working group be identified and given a mandate to provide continuing leadership in the continued development and updating of guidelines and maintenance of the pursuit of a high standard of care in concussion.

Medicolegal considerations

Although agreement exists about the principal messages conveyed by this

document, the authors acknowledge that the science of concussion is at the early stages and therefore management and return to play decisions remain largely in the realm of clinical judgment on an individual basis. It is the intention of the group to analyse the medicolegal aspect of concussions in sports and to offer here a summary of the state of the art and to direct future efforts.

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Female athlete triad syndrome

New criteria for female athlete triad syndrome?

K M Khan, T Liu-Ambrose, M M Sran, M C Ashe, M G Donaldson, J D Wark

As osteoporosis is rare, should osteopenia be among the criteria for defining the female athlete triad syndrome?

The American College of Sports Medicine (ACSM) has provided a great deal of impetus to educating health-care providers, athletes, and the general public about the potential harm of a “serious syndrome consisting of disordered eating, amenorrhoea and osteoporosis”.¹ We recognise and respect the importance of research and attention to this clinical problem and commend the ACSM on its contribution to date.² To their credit, the authors of the most recent position stand acknowledged that there were no data reporting prevalence on this condition,³ and they encouraged further research. Since then, Mayo Clinic physiatrist Tamara Lauder⁴ has published two important papers showing a 0% prevalence of the female athlete triad (as defined by ACSM) despite 34% of this military population being at risk of disordered eating. Therefore we re-examined the prevalence of one component of the female athlete triad, osteoporosis, in studies of athletic women with menstrual disturbance. The syndrome can be no more prevalent than any one of its diagnostic criteria alone. Thus, if osteoporosis is only present in a

small proportion of the population, then it follows that the female athlete triad can only be prevalent in an equally small, or smaller, proportion of that population.

DIFFERENTIATING OSTEOPOROSIS FROM OSTEOPENIA

Because of the increasing public awareness of osteoporosis and its complications, medical practitioners must not use the term as a synonym for “low bone mass”.⁵ The current standard for measuring bone mass (bone mineral density; BMD) is by dual energy x ray absorptiometry, and since 1994 the term osteoporosis has had diagnostic criteria based on this technique.^{3, 6, 7} Osteoporosis is defined as BMD more than 2.5 standard deviations below the mean of young adults. The term osteopenia describes BMD scores between 1 and 2.5 standard deviations below the mean of young adults. Scrutiny of many papers examining BMD data in athletes at risk of the female athlete triad syndrome (table 1) suggests that osteopenia has a significant prevalence but that osteoporosis is relatively uncommon, even in this selected population. In the substantial

reviews of Bennell *et al*,^{8, 9} menstrual disturbance was associated with a mean 10.3% lower lumbar spine BMD, which reflects the lower limit of normal BMD and very early osteopenia (T score about –1.0). Not surprisingly, numerous authors reporting bone health of sportswomen have used osteopenia as the appropriate term.^{8, 10–13} Interestingly, even in the significant pathology of anorexia nervosa, the mean BMD of patients reflects osteopenia rather than osteoporosis.¹¹ A crucial point is that significant osteopenia—that is, T-score of –2.0—in a 20 year old may provide a worse prognosis for long term bone health than osteoporosis in a 65 year old with a T-score of –2.6.

Osteoporosis can, and does, occur in athletes^{14, 15} (table 1), but we argue that requiring this condition to be present in the female athlete triad syndrome relegates the syndrome to relative obscurity. It is unlikely that the prevalence of osteoporosis in athletes with disordered eating could be greater than the prevalence of osteoporosis in anorexia nervosa (table 2). Therefore, the female athlete triad, as currently defined, most likely has a lower prevalence than anorexia nervosa. This is borne out by the data of Lauder *et al*⁴ showing that the prevalence of anorexia nervosa was < 8% but the prevalence of the female athlete triad was 0%. Anorexia nervosa has an overall age adjusted incidence per 100 000 person years of 14.6 for females and 1.8 for males.¹⁶ Thus, if osteoporosis is a diagnostic criterion for the female athlete triad, the triad should have an age adjusted incidence of substantially less than 0.015% in the population at large. Note that this calculation is not based on anorexia being an essential component of the triad—it is not. These data merely recognise the fact that osteoporosis, as strictly defined, affects only a proportion

Table 1 Prevalence of osteoporosis and osteopenia at the lumbar spine as measured by dual energy x ray absorptiometry in athletic populations considered at risk of the female athlete triad

Reference	Population studied (age as mean (SD))	Number of subjects in the at risk population	Prevalence of either osteoporosis or osteopenia	Mean T score for group (lumbar spine unless stated)
Lauder <i>et al</i> ⁴	Military recruits aged 27.5 (7.7)	423	0% osteoporosis, 1.4% osteopenia	Not given
Young <i>et al</i> ²³	Elite ballet school students aged 17 (1.2), all had menstrual disturbance	44	0% osteoporosis, 22% osteopenia	-2.1 at the lumbar spine (osteopenia), +2.1 at the femoral neck (normal)
Rutherford ²⁴	Amenorrhoeic triathletes and distance runners aged 29.5 (7.5)	15	13% osteoporosis, 40% osteopenia	-1.5 (osteopenia)
Tomten <i>et al</i> ²⁵	Runners with menstrual disturbance aged 27.6 (5.8)	13	Not given	-1.2 (estimated from graph = mild osteopenia)
Drinkwater <i>et al</i> ²⁶	Amenorrhoeic runners and rowers aged 24.9 (4.7)	13	Not given	-1.6 (osteopenia)
Cann <i>et al</i> ²⁷	Women with hypothalamic amenorrhoea (all but one were runners) aged 27.3 (6.1)	11	Not given	-1.3 (mild osteopenia)
Nelson <i>et al</i> ²⁸	Amenorrhoeic distance runners aged 25.2 (4.7)	11	Not given	-0.97 (normal, borderline osteopenia)
Warren <i>et al</i> ¹²	Amenorrhoeic dancers aged 19 (3.4)	22	Not given	-0.88 (normal)
Pettersson <i>et al</i> ²⁹	Amenorrhoeic distance runners aged 21.8 (3.0)	10	10% osteoporosis, 50% osteopenia	-1.4 (estimated from graph = mild osteopenia)
Micklesfield <i>et al</i> ¹⁰	Amenorrhoeic ultramarathon runners aged 35 (4.3)	10	Not given but probably a significant number with osteoporosis	-2.1 (osteopenia)
Myburgh <i>et al</i> ⁴⁰	Amenorrhoeic college athletes aged 29.3 (6.9) years	9	Not given	-1.2 (mild osteopenia)

A T score between -1.0 and -2.5 represents osteopenia.

of those with the most severe form of eating disorder—*anorexia*.¹¹

Osteoporosis can, and does, occur in athletes, but we argue that requiring this condition to be present in the female athlete triad syndrome relegates the syndrome to relative obscurity.

The condition of osteopenia is important and in postmenopausal women confers a doubling of the normal fracture risk and warrants attention.¹¹ Also, an athlete with osteopenia is at greater risk of

developing osteoporosis than is an athlete with normal bone mass. If either osteopenia or osteoporosis were accepted as criteria for impaired bone health, the female athlete triad syndrome would have greater prevalence and clinical relevance. Any athlete with osteopenia should optimise their lifestyle to try to maintain bone mass and increase bone strength.¹⁷ Physical activity and adequate nutrition are keystones to management of osteopenia; there is no evidence that pharmacotherapy is indicated to treat it.

DID THE CHANGING DEFINITIONS OF OSTEOPOROSIS CAUSE THIS SITUATION?

How did this arguably inappropriate use of the term osteoporosis arise? The 1993 position stand stated that “osteoporosis

in this group of young female athletes refers to premature bone loss and inadequate bone formation, resulting in low bone mass, microarchitectural deterioration, increased skeletal fragility, and an increased risk of fracture”.¹⁸ If the increased risk of fracture refers to “stress fracture” rather than osteoporotic fracture, this definition accurately reflects the bone health consequences associated with inadequate energy availability. This 1993 position stand preceded the World Health Organization definition of osteoporosis based on the BMD criteria as outlined above. Perhaps the 1997 position stand definition of osteoporosis was updated to reflect the new definition without there being time to consider the clinical implications inherent in the new, BMD based, definition.

Table 2 Prevalence of osteoporosis and osteopenia at the lumbar spine as measured by dual energy x ray absorptiometry in patients with anorexia nervosa

Reference	Population studied (age as mean (SD))	Number of subjects studied	Prevalence of either osteoporosis or osteopenia	Mean T score (lumbar spine unless stated)
Grinspoon <i>et al</i> ¹¹	Women with anorexia nervosa aged 24.4 (5.7)	130	13% osteoporosis 50% osteopenia	-1.4 (mild osteopenia)
Young <i>et al</i> ²³	Anorexia nervosa patients aged 18.1 (0.17)	18	6% osteoporosis (1 subject) 39% osteopenia	-1.0 (mild osteopenia/borderline normal)
Bachrach <i>et al</i> ⁴¹	Anorexia nervosa patients aged 15.9 (1.5)	18	17% osteoporosis* 66% had BMD <-2. 56% osteopenia	-1.5 (osteopenia)
Seeman <i>et al</i> ⁴²	Patients with anorexia nervosa aged 21 years (range 12-40)	210	Not given	-1.2 and -1.0 at the femoral neck
Seeman <i>et al</i> ⁴³	Patients with anorexia nervosa and secondary amenorrhoea aged 24.4 (8.4)	37	Not given	-1.5 (osteopenia)
Grinspoon <i>et al</i> ²²	Adolescents with anorexia nervosa and secondary amenorrhoea aged 16.0 (1.7)	19	<21% with osteoporosis 50% osteopenia†	-1.0 (mild osteopenia, borderline normal)

A T score between -1.0 and -2.5 represents osteopenia.

*Two of these three subjects were aged 12 and arguably still gaining bone, so this may represent an overestimate of osteoporosis.

†Different data in abstract (42%) and results sections (50%) for AP lumbar spine by dual energy x ray absorptiometry.

IS IT TIME TO REPLACE "OSTEOPOROSIS" WITH "OSTEOPENIA OR OSTEOPOROSIS" IN THE POSITION STAND?

There have been many scientific advances since the ACSM's 1997 position stand was developed based on "a comprehensive literature survey, research studies, case reports, and the consensus of experts". Because of the authority of the College and its experts, we believe that such a document must be updated regularly, despite the enormous challenges that this entails. We believe that this process has already started. Therefore, we respectfully ask: does the ACSM want to emphasise a condition that is rare (osteoporosis) in the young active population at risk of disordered eating or would it be preferable to acknowledge the importance of a condition that has greater prevalence (osteopenia) and lends itself to lifestyle modification treatment from a multidisciplinary team that is well represented within College ranks?

SUMMARY

We believe that the widespread association of the term osteoporosis with athletic activity through the term female athlete triad may not accurately reflect the currently available evidence. We note recent data emphasising the importance of disordered eating, not exercise per se, in causing suboptimal bone mass.¹⁹⁻²² Dr Carol Otis, one of America's greatest contributors to women's health, emphasises that "the triad is not caused by participation in sport".²³ Thus, the word athlete appears to be a victim caught in the pathway from low energy availability to impaired bone health.¹⁹ This unfortunate association adds a hurdle for those committed to promoting recreational physical activity in the primary prevention of chronic disease.²⁴

Our respectful suggestion should not, in any way, be considered a criticism of the ACSM or the authorities that have devoted their enormous scientific and educational endeavours to this important aspect of women's health. We support their commitment to preventing the complications associated with disordered eating, which, as in the case of US gymnast Christy Heinrick, include death. As the references in this leader attest, we commend and applaud the work of Anne Loucks^{19, 25-32} and others who are authors of the ACSM position stand. We ourselves are proud to serve the ACSM in various capacities, and, together with our colleagues in the ACSM and around the world, aim to raise awareness of the threat of inadequate energy availability to bone health.

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..... **COMMENTARY**

Dr Khan and colleagues have provided an excellent review and scientific analysis of the available evidence on the osteoporosis component of the female athlete triad and have brought to light some important concepts regarding the triad definitions, prevalence, and clinical relevance in the athlete population. Over the last decade since the initial Triad Consensus Conference in 1992, there has been much research on disordered eating and inadequate energy availability, amenorrhea, and bone health concerns in the female athlete, which has greatly

enhanced our understanding of the pathogenesis of the various components of the triad, and has helped us to better prevent and treat athletes with these medical concerns. Because of the advances in our understanding and management of the triad, an update on the ACSM Position Stand is warranted and is underway.

The components of the triad as initially described were meant to alert athletes and their health care team, as well as parents, coaches, and the public to the potential dangers of these medical disorders, their interrelationships and comorbidities, and to serve as an assessment of risk rather than as strict diagnostic criteria for a medical syndrome. It is important to emphasise that each of the components of the triad lie on a spectrum. While it is acknowledged that osteopenia in the young female athlete is more common than osteoporosis, it is important to realise the potential that exists for the development of osteoporosis if the other interrelated components of the triad are not recognised and adequately treated. Furthermore, there is much research that is needed assessing the prevalence of osteopenia and osteoporosis in the female athlete population.

The original intent of the term osteoporosis as a component of the triad was to represent the end point on a spectrum of bone health that could be the poten-

tial result of disordered eating and/or amenorrhea. Dr Khan and colleagues are correct in that the original description of osteoporosis as a component of the triad was indeed prior to the World Health Organization (WHO) definition of osteoporosis based on bone mineral density criteria. With this new definition, fewer young athletes will fit this criteria for osteoporosis, but the future potential for osteoporosis still exists and is a significant concern. It is also important to recognise that the WHO criteria was developed to serve as guidelines for management of osteoporosis in postmenopausal women, and no specific criteria has been developed and uniformly accepted for diagnosis and management of osteoporosis in premenopausal women, including the young female athlete. Whether the actual definition of the triad needs to be changed to better represent the available data on the prevalence of osteoporosis in the female athlete population, or a clarification and emphasis on the triad spectrum of disorders and comorbidities, is a topic for further discussion amongst our colleagues in ACSM.

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Intensive training in girls

Intensive training in elite young female athletes

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Effects of intensive training on growth and maturation are not established

Parents, coaches, sport administrators, healthcare professionals, and the broader public have been alarmed by reports that intensive physical training in female athletes, initiated at young ages, may delay subsequent growth and maturation, and perhaps even reduce final adult stature.

GROWTH, MATURATION, AND DEVELOPMENT

Whereas growth specifically refers to the increase in the size of the body as a whole, and of its parts, maturation refers to progress towards the biologi-

cally mature state. Maturation differs from growth in that, although various biological systems mature at different rates, all individuals reach the same end point, becoming fully mature. Maturation therefore has two components, timing and tempo. Development refers to the acquisition of behavioral competence and is culture specific. Growth, maturation, and development occur simultaneously and interact. Growth and maturation are characterised by individual variation and, although under genetic and neuroendocrine control, environmental factors, including sport,

may also have an influence.¹ Our understanding of the effect that sports training has on the growing child is limited because of the difficulty in distinguishing the independent effects of training from those of normal growth.² Only when a child is repeatedly measured from childhood through to adolescence can independent effects be identified. To date, there are limited numbers of such longitudinal studies, and hence most of our knowledge has been gained from cross sectional studies. The cross sectional nature of such studies obviously has made inferences that training delays puberty or reduces adult stature problematic.

BODY SIZE

On average, young female athletes from most sports have statures that equal or exceed the median for the normal population. Female basketball players, volleyball players, tennis players, rowers, and swimmers have been to shown to have mean statures above the 50th centile of the reference populations from 10 years onwards.³ However, gymnasts consistently present mean values below the 50th centile, with a secular trend for decreased stature: today's elite female gymnasts are, on average, shorter than

the gymnasts of 20 years ago.⁴ Figure skaters also have shorter statures. Ballet dancers tend to have shorter statures during childhood and early adolescence, but catch up with non-dancers in late adolescence.³

On average, young female athletes from most sports have statures that equal or exceed the median for the normal population.

In general, female athletes tend to have body masses that equal or exceed the reference medians. Gymnasts, figure skaters, and ballet dancers consistently have lighter body mass. However, gymnasts and figure skaters have appropriate body mass for their height, whereas ballet dancers and distance runners have low body mass for their height. Although female athletes from a number of sports tend to be heavier than reference populations, they also, in general, have lower percentage body fat.

PHYSIQUE OF YOUNG ATHLETES

Successful early adolescent and adolescent athletes (about 12–18 years of age) tend to have, on average, somatotypes similar to adult athletes in their respective sports.⁵ Compared with adult female athletes, young female athletes tend to be less endomorphic, less mesomorphic, and more ectomorphic. The latter component reflects the role of growth in the transition from late adolescence into young adulthood. Physique is a significant contributor to success in many sports, and may be of particular importance in aesthetic sports such as gymnastics, figure skating, and diving, where performance scores may be influenced by how the judges perceive the athlete's physique.⁶

MATURATION OF YOUNG ATHLETES

Maturity differences among young female athletes are most apparent during the transition from childhood to adolescence, and particularly during the adolescent growth spurt. During childhood, the skeletal ages of gymnasts are average or on time for chronological age. As they enter adolescence, most are classified as average and late maturing, with few early maturing girls. In later adolescence, most gymnasts are classified as late maturing.³ Gymnasts and ballet dancers tend to attain menarche later than the normal population and girls in other sports.⁷ Early and average maturing girls are systematically represented less among gymnasts as girls pass from childhood through adolescence, probably reflecting the selection

criteria of the sport, and perhaps the performance advantage of later maturing girls in gymnastics activities. Ballet dancers and distance runners show a similar maturity gradient in adolescence. In contrast, young female swimmers tend to have skeletal ages that are average or advanced in childhood and adolescence.³

STATURE AND REGULAR TRAINING

The smaller size of elite gymnasts is evident long before any systematic training starts⁸ and is in part familial. In our own studies we have found that gymnasts have parents who are shorter than average.⁹ There is also a size difference between those who persist in the sport and those who drop out.¹⁰ Female athletes in volleyball, diving, distance running, and basketball show rates of growth in height that, on average, closely approximate rates observed in non-athletic children,³ which are well within the range of normally expected variation among youth.¹¹ Most recent studies have found no evidence to suggest training causes changes in anthropometric variables.^{12–15} Available data also indicate no effect of sport training on the age at peak height velocity or the growth rate of height during the adolescent spurt.³ Data are insufficient to warrant that intensive training may delay the timing of the growth spurt and stunt the growth spurt in female gymnasts. Many confounding factors are not considered, especially the rigorous selection criteria for gymnastics, marginal diets, short parents, and so on. Female gymnasts, as a group, show the growth and maturation characteristics of short, normal, slow maturing children with short parents. Although we believe that training does not compromise adult stature, others suggest an opposite view. A short term longitudinal study in which the adult stature of gymnasts and swimmers were predicted concluded that gymnasts were failing to obtain full familial height.¹⁶ However, decreasing predicted adult height during puberty is a characteristic of slow or late maturation, confirmed by the late onset of menarche in these subjects.¹⁶ Other studies of gymnasts, over longer time periods, have also observed lags in adolescent growth but then report subsequent catch up growth.^{2, 10} Lindholm's group¹⁷ found that six of 21 Swedish gymnasts studied over a five year period ended up 3.5–7.5 cm shorter than their predicted adult stature. Final height was predicted from parental heights. Although this protocol gives a target adult height, one would expect 95% of daughters to fall within a 9 cm range of this value. Thus, the final heights of these Swedish gymnasts¹⁷ are,

in fact, well within the range of variation expected with the stature prediction method used.

In contrast with height, body mass can be influenced by regular training for sport, resulting in changes in body composition. Reduced skinfold levels have been observed in growing female athletes and are dependent on continued, regular activity or training, or continued energy restriction. This situation often occurs in sports such as gymnastics, ballet, figure skating, and diving. However, it is difficult to separate specific effects of training on fat mass from expected changes that occur with normal growth and sexual maturation during adolescence.

SEXUAL MATURATION

The limited longitudinal data for girls active in sport compared with non-athletic girls indicate no effect of training on the timing and progress of secondary sexual characteristics (development of breast and pubic hair).¹⁸ The interval between ages at peak height velocity and menarche (1.2–1.5 years) for girls active in sport and non-active girls also does not differ, and is similar to that of non-athletic girls.¹² Most discussions of the potential influence of training on sexual maturation have focused on the later mean age at menarche, often observed in female athletes.^{2, 3} Typically, training for sport was indicated as the factor responsible for this finding, with the inference that training “delayed” menarcheal onset. Unfortunately, most studies of athletes do not consider other confounding factors known to influence menarche.⁷ Thus, given the many factors known to influence menarche, sport training per se has yet to be proven beyond reasonable doubt to be the causative factor for later menarche in female athletes.

CONCLUSIONS

Concerns have centred on the suggestion that intensive training causes growth retardation and pubertal delay in female athletes, specifically gymnasts. Interestingly, male gymnasts also have consistently short statures and late maturation, but these trends are not attributed to intensive training.^{3, 9} From our review of the literature, training does not appear to affect growth and maturation. It is more likely that young athletes select themselves, or are selected by coaches and sport systems, into their specific sports. Therefore, in general, the differences observed in stature between athletes and non-athletes are mainly the result of nature rather than nurture. With regard to pubertal development, the evidence suggests that the tempo is slowed down in some sports, but it has not yet been possible to identify whether this is an

effect of nature or nurture. To clearly show that intensive training is a factor, future studies must be longitudinal, and be able to partition constitutional factors and the other components of the sport environment of female athletes before causality can be established.

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Pregnancy in sport

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Banning pregnant netballers—is this the answer?

S White

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A forum on a ban of pregnant netballers considered that the ban was discriminatory and that pregnant women should have the right to make decisions about competing in sporting activities

A recent move by Netball Australia to ban all pregnant netballers at all levels from participating in their sport has been met with a mixture of outrage and sympathy. Those who advocate a woman's right to make decisions about her own pregnancy, including sports participation, have been vocal in their disagreement with this ban. Sporting administrators in fear of litigation and some sporting competitors concerned about playing against a pregnant opponent have welcomed the ban.

The introduction of the ban had an immediate effect, with a national level netballer announcing her pregnancy (first trimester) and applying to the Human Rights and Equal Opportunity Commission for a lifting of the ban on the basis of discrimination. The case is pending.

Such a controversial situation prompted the Australian Sports Commission to hold a national forum with a

range of experts and interested parties invited to contribute. Firstly, the available medical evidence was discussed. Associate Professor Caroline Finch, Chair of the National SportSafe Committee and a leading epidemiologist in the area of sports injury, reported that there is not a single case of an adverse outcome in pregnancy related to sports participation in the world literature. Admittedly there are no specific studies on pregnancy and contact sports, but numerous studies have looked at aerobic activities and fetal outcome.

A number of papers now concur that women who take moderate exercise (less than four times a week) in fact have larger babies than non-exercisers or more extreme exercisers.¹ None of these studies recorded any problems in terms of labour, delivery, or Apgar scores in any of the groups. There are now even a few studies of cognitive behaviour in newborns and 1 year old and 5 year old chil-

dren all showing that those whose mothers exercised during pregnancy functioned as well as, or better than, those whose mothers did not.²

Current available evidence suggests that sport and exercise, if anything, has a beneficial effect on the fetus/child.

In terms of contact in sport, the only large body of literature that considers fetal injury in relation to contact is in motor vehicle accidents and domestic violence, neither of which could be considered comparable to a game of netball. To further attempt to quantify a possible risk from sporting contact, Finch used data from two large epidemiological studies on the incidence of types of sporting injuries. In both studies, less than 2% of all injuries, in a range of sports, involved the chest or abdomen and in both studies all contacts were considered minor.

Finch conceded that there is room for more research in this area, but the current available evidence suggests that sport and exercise, if anything, has a beneficial effect on the fetus/child.

Professor Wendy Brown discussed public health issues, in particular female participation rates in sport. Professor Brown is the principal investigator with the Australian Longitudinal Study of Women's Health, involving 40 000 participants. Part of the study focused on sports participation and showed that the

biggest fall in participation rates in women is during their 20s and 30s (child bearing years) when there are a number of practical barriers to regular exercise. Couple this with the fact that physical inactivity is one of the largest contributors to ill health,³ more so in women, then there is an overwhelming argument to encourage women to exercise during this time rather than send the wrong message by banning participation in netball (the single largest participation sport for women in Australia).

Dr Michael Sedgley, obstetrician and past chairman of the medicolegal committee of the Royal Australian and New Zealand College Of Obstetricians and Gynecologists, argued that there is no evidence to suggest that exercise during pregnancy is in anyway harmful to the fetus. He also cited research showing that exercise during pregnancy can decrease the incidence of nausea and depression and increase feelings of well-being in the mother. Unfortunately there is no evidence that active women have shorter or easier labours, but it is possible that they may recover more quickly in the post partum period. He advocated the right of the woman to make a choice about sports participation during pregnancy, in conjunction with her medical practitioner.

Exercise during pregnancy can decrease the incidence of nausea and depression and increase feelings of wellbeing in the mother.

A legal session involved discussion on the current Australian legislation with regard to anti-discrimination, occupational health and safety, and negligence

law. Banning a person from participating in an activity because of their sex, religion, or pregnant state is against the provisions of the Anti-discrimination Act. To do so, a group must either apply for an exemption (which Netball Australia did not do) or show exceptional circumstances (the test case awaits).

In terms of the risks of negligence for sporting organisations, including its administrators, umpires, and opposing players, it has never been tested. The legal expert present stated that "causation" must be shown, and he felt that there was insufficient evidence in the current literature to support this. This point of view was disputed by some who were concerned that in a trial in which a jury may decide the matter, such an emotive case as (potential) injury to a child may affect the judgment.

A representative of the insurance industry acknowledged that one of the biggest issues facing sporting organisations in Australia is the rising cost and inaccessibility of public liability insurance, without which an organisation cannot operate. He felt that the current wording of the general policies would cover injuries to a pregnant woman and her fetus but that it had never been tested. If a case was to occur, this may significantly increase the premiums required to cover future risk, making such cover beyond the reach of most sporting organisations and putting their existence in doubt.

Finally ethicists discussed the issues involving the ban, as well as confidentiality issues in relation to team medical officials in the case of a pregnant athlete involved in a sport that bans participation.

The resultant informal consensus of the forum was that the ban was discriminatory, that women should have the right to make decisions about com-

peting in sporting activities (in conjunction with their medical practitioners), and that it is mandatory to better educate players, officials, and medical practitioners about the current state of knowledge on exercise during pregnancy. Litigation for negligence was considered unlikely from the current evidence in the literature.

Meanwhile Netball Australia continues its ban. This ban has generated much discussion and hopefully inspired researchers and the government to investigate and fund relevant research in this area.

The outcome of the case before the anti-discrimination board will certainly affect future policy, but it is hoped that sensible discussion of the issues, education of all parties involved, and the results of future research will contribute more to the development of participation guidelines than the fear of litigation.

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Medical records

Who owns the information?

J Orchard

Databases of injuries in professional sport are valuable resources which should not suffer confidentiality restraints

When a doctor sees a patient and makes a medical record, there is potential for a dispute as to the relative rights that the doctor and patient have over this stored piece of information. The issue becomes more complicated when a third party such as

an insurance company is involved. What about when more than ten parties are involved? How about when a professional sporting competition and a sponsor, on the advice of a research panel, pay a consultant to collect information from salaried team doctors and an insurance

company on injuries that occurred to athletes at specific venues in the competition, and, as a result, the information is published in a medical journal and finally reported in the lay press? Is any of this information confidential? Can any of the listed parties object to the release of a report on the basis of their "ownership" of part of the information?

One of the fundamental ethical principles of medicine is that the doctor-patient relationship is privileged and confidential. In theory, a doctor treating a professional athlete should not pass on information on that athlete's injury history without the expressed consent of the player. In practice, professional team doctors do this all the time, and players rarely object. If Joe Bloggs, the amateur, is playing football and dislocates his

shoulder, he can assume the right that his treating doctor will not pass on information about the injury to third parties not involved in the treatment. The situation is totally different if Joe Bloggs is a professional athlete. If he is being paid money to play football, then all of the parties involved in paying him the money (especially the viewing audience) want to know that he has dislocated his shoulder. They also want to know details, such as whether he will need surgery and how long it will be before he can play again.

Professional athletes are celebrities working in a segment of the entertainment industry, and when they suffer injuries, this is part of the entertainment.

Professional athletes are celebrities working in a segment of the entertainment industry. Unfortunately, when they suffer injuries, this is part of the entertainment. The occurrence of injuries to public figures is seen to be public information, and hence in this sense no one “owns” the information. Unlike movies, which are rated unsuitable for children on the basis of sexual or violent scenes, sporting events are open to all viewers. Publicly no sporting administrator will ever condone violence or injuries in sport, yet a quick survey of spectator sports shows a high correlation between popularity and potential for injury. No one has ever requested a copy of a video of a Formula One Grand Prix with the crash scenes edited out because they “don’t like to see drivers getting hurt”. Anyone tragic enough to be watching a recorded video of a motor race is probably doing it for the opposite reason—to fast forward through the “boring bits” of the race where all the drivers are staying on the road.

There are occasions in which athletes and their entourage will deliberately try to hide the details of injuries for a secondary gain. A classic example of this would be a rugby player who decides to soldier on carrying a broken rib who doesn’t want his opponents to target him for extra tackling. On other occasions, athletes like to exaggerate minor injuries to cover up for a loss of form or failure to achieve selection in the team. In the vast majority of occasions, the media will be told the truth about an athlete’s injury. There is a good reason for this: journalists are very good at finding out the truth about injuries. They are almost as good as bookmakers, whose profitability depends almost entirely on being the first to find out when star players are going to be missing through injury. Professional

athletes of any significance will have their medical histories quickly uncovered by these two groups of allies.

Publicly no sports administrator will ever condone violence or injuries in sport, yet a quick survey of spectator sports shows a high correlation between popularity and potential for injury.

How accurate, extensive, and accessible are media reports on the injuries of professional athletes at the present time? In most cases the answers are very, very, and very. I was recently involved in a study designed to show how much detail there is available about injuries to professional athletes on the world wide web, specifically looking at the National Basketball Association (NBA).¹ There are at least 13 web sites that specialise in NBA injury reports. Over two recent seasons in the NBA, every time a player missed a game, a reason was posted on the web and, in the case of injury, a body area cited. In 82% of cases, the diagnosis was more specific including a body part and injury type, even in some cases where the diagnosis may have been sensitive or career threatening.¹ The diagnoses given on these web sites are generally likely to be accurate, as their collective profile shows a great similarity to the official injury profile of the NBA, which has also recently been published.²

One can argue about the accuracy of media and web reports about injuries in professional athletes, yet their proliferation makes it hard to mount a serious argument to say that confidentiality should be a barrier to performing analytical research on them. Unfortunately this argument is often made by both well meaning people who have no idea about professional sport and the legal profession. Fears about privacy do stand in the way of good research that would have the potential to benefit everyone. The most extensive injury database in professional sport is of injuries in the National Football League (NFL), which contains over 20 years of data.³ Over the same time period, NFL doctors have met at a draft combine on an annual basis to conduct preparticipation medicals on players who wished to enter the NFL. If the data from the combine and the injury survey were combined and published, the sports medicine community could be given an extensive prospective appraisal of the value of preparticipation medicals in predicting future injury risk. Apparently this has been suggested on many occasions but has never eventuated because there are too many parties with

an interest in these data and no agreement can be reached about the constraints of such a study.

I have had plenty of experience of dealing with the multiple parties involved in the injury surveillance system of the Australian Football League (AFL). We have been able to conduct this research in a background of excellent cooperation from the AFL medical officers, the AFL administration, and the AFL Players Association. The prevailing attitude has been that no single stakeholder “owns” the injury data, but each must be consulted in the process of conducting a study or analysis using these data. There is a danger that, with so many parties having a right of veto, important studies may not see the light of day. We must keep our eye on the ball to prevent this from happening. To date, I consider that it is fortunate that we have never submitted the AFL Injury Surveillance System to a university ethics committee. It is quite likely that, if an ethics committee ever crossed the path of the AFL injury surveillance system, it would demand it be halted until every player in the competition had given written permission for his injury data to be analysed. Fortunately people working within the AFL industry, who appreciate that a side effect of the enormous pay packet afforded to a professional football player is that his privacy is almost non-existent, have not made this ridiculous and destructive suggestion.

It is quite likely that, if an ethics committee ever crossed the path of the AFL injury surveillance system, it would demand it be halted until every player in the competition had given written permission for his injury data to be analysed.

To date there has been a small amount of information from the AFL injury surveillance system that has been censored by consensus. The Australian media has often made us think that we should not have bothered with our modesty. An example is that we do not publish a team by team ranking of injury incidence in our reports, because of the fear that the media will sensationalise this information and unfairly taint the teams with the greatest rates of injury. Because we do not publish such a list, the media compile their own lists of which teams have suffered the most injuries, and of course use them to create sensational headlines and unfairly taint the unfortunate teams who have suffered the most injuries. This of course happens

elsewhere. The NFL injury surveillance system has led to published relative injury rates between artificial turf and natural grass.³ Yet the American media is so hungry for information that at the end of the 1999 NFL season, the *LA Times* published its own study, based on media reports, comparing injury rates between teams playing on grass and artificial turf.⁴

The databases of injuries in professional sport, and for that matter amateur sport, are extremely valuable resources. The future of sports medicine publication is that hopefully there will be more papers published with exposures in the millions of hours,⁵ rather than the case series of a dozen or so patients from someone's private practice that have been the staples of sports medicine journals in the past. If we can start to get

some more serious numbers in our studies, then we will reach much more important conclusions and, in the end, be taken more seriously by the rest of the medical profession. The issues of confidentiality and privacy are significant. Individuals should not have to fear what happens to their medical history, but there is a greater loss to the public by not undertaking sports medicine research because of disputes over data ownership.

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EXHIBIT 29

An overview of concussion consensus statements since 2000

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✓More refereed publications on sports-related concussion have appeared since 2000 than in all previous years combined. Three international consensus statements, documents from the National Athletic Trainers' Association (NATA) and the American College of Sports Medicine (ACSM), and entire issues of the *Clinical Journal of Sport Medicine* and the *Journal of Athletic Training* have been devoted to this subject. The object of this article is to critique the consensus statements and NATA and ACSM documents, pointing out areas of controversy.

KEY WORDS • brain concussion • postconcussion syndrome • sports-related concussion
• neuropsychological assessment • sports medicine

IT has been estimated by PubMed Central that more refereed publications on sports-related concussion have appeared since the year 2000 than in all the previous years combined. Since 2000, three international concussion-in-sport consensus statements have been published: 1) the Vienna statement of 2001;¹ 2) the Prague statement of 2004;⁵ and, most recently, the St. Moritz conference of 2006. Extensive documents on concussion have also emerged from the NATA (the National Athletic Trainers' Association position statement, published in 2004)³ and the ACSM (a consensus statement on concussion and the team physician, which appeared in 2006).⁴ In addition, entire issues of the *Clinical Journal of Sport Medicine* (July 2001) and the *Journal of Athletic Training* (July–September 2001) have been devoted to the subject.

A consensus statement obviously is just that, but the consensus is often not unanimous. Whenever writing groups are assembled from diverse organizations as well as from diverse personal and professional backgrounds, organizational or personal bias may be present, no matter how much expertise is brought to the table. The purpose of this paper, written by a member of the writing groups of all three international concussion consensus statements as well as the NATA and ACSM publications, is to give an overview as well as a personal critique of each of these documents.

Consensus Statements

Summary and Agreement Statement of the First International Conference on Concussion in Sport, Vienna 2001

This document was published concurrently in early 2002 in the *British Journal of Sports Medicine*, the *Clini-*

cal Journal of Sport Medicine, and *Physician and Sports Medicine*.¹ (See Appendix 1 for lists of authors and affiliations.) The conference was held in November 2001 and was supported and organized by the International Ice Hockey Federation, the FIFA Medical Assessment and Research Center, and the IOC Medical Commission, with a stated objective of providing recommendations for the improvement of the safety and health of athletes who suffer concussive injuries in ice hockey, soccer, and other sports. Experts were invited to address specific issues involving epidemiology, basic and clinical science, grading systems, cognitive assessment, new research methods, protective equipment, management, prevention, and long-term outcome from concussive injury. At the conclusion of the conference, a small group of the experts was given the mandate to draft the document that was subsequently published in the three journals previously mentioned.

The Vienna conference was, in my opinion, very successful, and the resulting publication is the most comprehensive of the three international consensus statements on concussion in sport. I recommend it as a valuable resource for all who are interested in sports-related concussion.

This document provided a revised definition of concussion as "a complex pathophysiological process affecting the brain, induced by traumatic biomechanical forces."¹ The statement further qualified the definition by noting five conclusions about the nature of concussive head injury. First, "concussion may be caused by a direct blow to the head, face, neck, or elsewhere on the body with an 'impulsive' force transmitted to the head." Second, a "concussion typically results in the rapid onset of short lived impairment of neurological function that resolves spontaneously." Third, "concussion may result in neuropathological changes but the acute clinical symptoms largely reflect a functional disturbance rather than structural injury." Fourth, "concussion results in a graded set of clinical syndromes that may or may not involve loss of consciousness. Resolution of the clinical and cognitive

Abbreviations used in this paper: ACSM = American College of Sports Medicine; FIFA = Fédération Internationale de Football Association; IOC = International Olympic Committee; NATA = National Athletic Trainers' Association.

symptoms typically follows a sequential course.” Fifth, “concussion is typically associated with grossly normal structural neuroimaging studies.” All five of these conclusions are supported by current evidence.

No single concussion grading scale was endorsed by the conference—perhaps in part because experts who had produced grading scales of their own were at the writing table. In place of a single grading scale and in the absence of any scientifically validated return-to-play guidelines, the participants recommended the use of a clinical construct based on an assessment of recovery from injury and graded return to play. This construct includes the sideline evaluation of signs and symptoms of concussion as well as repeated assessments until all postconcussion symptoms resolve. It was recommended that a scale of postconcussion symptoms be used for both the initial sideline assessment and subsequent assessments. (See Appendices 2 and 3 for examples of a symptom checklist and a postconcussion symptom scale, respectively.) The conference participants concluded that sideline evaluation, including neurological assessment and mental status testing, is an essential component in evaluating sports-related concussion. I believe that these recommendations are sound and are not controversial.

Another consensus of this group was that “neuropsychological testing is one of the cornerstones of concussion evaluation and contributes significantly to both understanding of the injury and management of the individual.” It was suggested that the computer-based programs Immediate Postconcussion Assessment and Cognitive Testing (ImPACT), CogSport, Automated Neuropsychological Assessment Metrics (ANAM), Sports Medicine Battery, and HeadMinder may have advantages over paper-and-pencil neuropsychological tests such as the McGill Abbreviated Concussion Evaluation (ACE) and the Standardized Assessment of Concussion (SAC). This is the first time that neuropsychological testing has been so strongly advocated in a concussion-in-sport consensus statement.

A new initiative that emerged from this group was the recommendation that return to play after concussion should follow a stepwise process. In this protocol, the injured athlete initially follows a regimen of complete rest until he or she is asymptomatic without activity. This initial stage is followed by one in which the athlete engages in light aerobic exercise, such as walking or stationary cycling. Having successfully completed that second stage, the athlete moves on to sport-specific training (for example, skating drills in hockey or running in soccer). The athlete then progresses from that third stage to a fourth one involving noncontact training drills, then to a fifth one in which full-contact training drills are allowed before receiving medical clearance to return to game play. It was recommended that this stepwise progression be followed and that the athlete proceed to the next level if asymptomatic at the current level. If any symptoms occur after ascending to a given level, the athlete should drop back down to the level at which he or she had been asymptomatic.

Although I believe that this is a prudent protocol for cases in which athletes have been away from play for weeks or a month or more after a concussion, I do not think that this protocol is necessary for athletes who are allowed to return to play within a week.

Another observation to emerge from the Vienna confer-

ence was that because the brain is not an organ that can be conditioned to withstand concussive injury, there are relatively few means by which such injury can be minimized in sports. Thus, perhaps the most important ways to reduce or prevent concussions are rule changes and rule enforcement. The authors acknowledged that the science of studying concussion is at an early stage and that, as a result, decisions regarding concussion management and return to play lie largely in the realm of clinical judgment and must be made on an individual basis.

The group concluded that whenever a player shows any symptoms or signs of concussion, he or she should not be allowed to return to play in the current game or practice, should not be left alone, should undergo regular monitoring for deterioration of condition, should undergo medical evaluation after the injury, and that return to play should follow a medically supervised, stepwise process. It was emphasized that the player should never return to play while symptomatic and that the adage “when in doubt, sit them out” should be followed. I believe these conclusions are sound, especially with regard to return-to-play issues.

National Athletic Trainers’ Association Position Statement: Management of Sport-Related Concussion

In my opinion, this position statement, which was published in 2004 in the *Journal of Athletic Training*,³ is the most comprehensive document published to date on sports-related concussion. The writing team was chaired by Kevin Guskiewicz, Chair of the Department of Sport and Exercise Science at the University of North Carolina, and included seven other recognized experts in the field of concussion. The writing process took more than a year and resulted in a document that comprises 36 specific recommendations and contains sections on defining and recognizing concussion; evaluating and making return-to-play decisions; and assessment tools, including instruments for postconcussion symptom assessment, cognitive screening, postural stability assessment, and neuropsychological testing (with subsections devoted to computerized neuropsychological tests and neuropsychological testing methods). It also contains sections on when to refer an athlete to a physician after a concussion and when to disqualify an athlete, as well as sections on special considerations for the young athlete, home care, and equipment issues.

As a reference source on the entire subject of sport concussion as well as for its comprehensive bibliography source on sport concussion, I strongly endorse this document.

Summary and Agreement Statement of the 2nd International Conference on Concussion in Sport, Prague 2004

The same organizational bodies that convened the First International Conference on Concussion in Sport in Vienna in 2001, namely the International Ice Hockey Federation, FIFA, and the IOC, convened a second conference on concussion in sport in Prague in November 2004. At the conclusion of the Prague conference, a small writing group composed of the same individuals who were involved with the Vienna document of 2001 was given the task of drafting a document describing the agreement positions reached by those in attendance at the meeting on

Concussion consensus statements

a variety of topics related to sport concussion. These topics included epidemiology, basic and clinical science, injury grading systems, cognitive assessment, new research methods, protective equipment, management, prevention, and long-term outcomes. Like the first document, this second document was published concurrently in the *British Journal of Sports Medicine*, the *Clinical Journal of Sport Medicine*, and *Physician and Sports Medicine*.⁵

This second international conference on concussion in sport was considerably more widely attended than the first and had a much greater representation from new groups, such as trauma surgeons and sports psychologists. The summary and agreement statement included a new pocket-sized, sideline-assessment summary card for use by clinicians. No significant breakthroughs in scientifically validated information on concussion had occurred between the two conferences; therefore, the second document might best be viewed as a modest updating of the first. One of the most meritorious recommendations from that statement was the one that concussion severity should only be determined after the following criteria have been met: 1) all signs and symptoms of concussion have cleared; 2) the results of neurological examination have returned to normal; and 3) the results of any neuropsychological tests or other cognitive function tests that might have been performed have returned to baseline or above.

Noting that brief loss of consciousness does not necessarily correlate with concussion severity; despite its association with early neuropsychological deficits, the participants recommended that loss of consciousness not be relied on as a measure of concussion severity. Another recommendation was that pediatric cases could be managed using guidelines similar to those used in caring for adult patients.

The authors also elaborated on the concept of “cognitive risks.” They suggested that scholastic activities and activities of daily living be modified while an athlete is still symptomatic following a concussion, because vigorous pursuits might intensify or prolong postconcussion symptoms.

Perhaps the most contentious recommendation was the suggestion that concussions could be divided into the following two categories. 1) A case of simple concussion was defined as one in which neurological symptoms resolved within 7 to 10 days. 2) A case of complex concussion was defined as one in which symptoms persisted longer than 10 days or the patient lost consciousness for longer than 1 minute, had a convulsive concussion, or had repeated concussions involving diminishing force. The writing group’s decision to use these two categories of concussion was not unanimous, because some members—including me—were certain that they would not refer to a concussion with symptoms lasting 10 days as a simple concussion. The word “simple” may, in fact, not be a good choice for describing any concussion.

Nonetheless, the group members agreed that the number, duration, and severity of total postconcussion symptoms were most important in determining concussion severity and that the combination of symptoms was more important than the single symptom of amnesia.

This document also described the motor phenomena, such as tonic posturing and convulsive movement, seen with convulsive concussion and emphasized that although

the presentation is dramatic, the outcome is usually benign and this form of concussion requires no specific treatment beyond the usual concussion management.

Another less-than-unanimous conclusion was that neuropsychological assessment following concussion is definitely of value, but should not be performed until all signs and symptoms have resolved. A unanimous conclusion regarding neuropsychological testing was that it is one piece of the concussion management puzzle but should never be a sole criterion to determine when an athlete should be allowed to return to play.

The statements regarding concussion management and rehabilitation were largely the same as those found in the Vienna document.

Concussion (Mild Traumatic Brain Injury) and the Team Physician: A Consensus Statement

In 2006, the ACSM published a sports-related concussion consensus statement (*Concussion [Mild Traumatic Brain Injury] and the Team Physician: A Consensus Statement*) in *Medicine Science and Sports and Exercise*.⁴ Created as a reference tool for team physicians, this statement represented the collaborative effort of six major professional associations, including the American Academy of Family Physicians, the American Academy of Orthopedic Surgeons, the ACSM, the American Medical Society for Sports Medicine, the American Orthopedic Society for Sports Medicine, and the American Osteopathic Academy for Sports Medicine. The team physician consensus statement was endorsed by a number of additional organizations, including the American Osteopathic Association, the NATA, the North American Spine Society, the National Collegiate Athletic Association, the National Youth Sports Safety Foundation, the American Academy of Podiatric Sports Medicine, and the American Kinesiotherapy Association. The expert writing panel was chaired by Stanley A. Herring. I believe this is an extremely useful document. The major goal of the writing group was to provide an overview of selected medical issues that are of keen importance to team physicians responsible for athletes with concussion. The areas covered include concussion epidemiology, pathophysiology, game-day evaluation and treatment, post-game-day evaluation and treatment, diagnostic imaging, management principles, return-to-play decisions, complications of concussion, and prevention. Each section of the document begins with the panel’s consensus on what is essential and continues with what is desirable for the team physician to know and understand. This is the feature of this document that I personally find most useful. Categorized as essential were methods of recognizing and evaluating athletes with concussion, the necessity for individualized management and treatment of athletes with concussion, the need for return-to-play decisions to be based on clinical judgment, the importance of developing a game-day medical plan specific to concussion injury, and the necessity of documentation. The paucity of well-designed studies of concussion and its natural history was also noted. It was concluded that it would be desirable for the team physician to have the ability to coordinate a systematic approach for the treatment of athletes with concussion, to identify risk factors and implement appropriate treatment, to under-

stand the potential sequelae of concussive injuries, and to understand preventive strategies.

For a team physician, another extremely useful aspect of this document was that it was broken down in terms of game-day treatment (treatment on the field as well as treatment on the sideline) and post-game-day treatment, in terms of concussion evaluation, management, and return-to-play criteria. It was considered essential that before any athlete be allowed to return to play, he or she should be asymptomatic at rest and exertion and must remain asymptomatic with exertion. Other factors that were considered essential in return-to-play decisions, especially post-game-day decisions, were the severity of the current injury as documented primarily by the number and duration of postconcussion symptoms; the number, severity, and proximity of previous concussions; whether a severe injury had occurred in response to what appeared to be a minor blow; the age of the athlete (with heightened concern for trauma to the immature brain); the sport involved; and whether the athlete had any learning disabilities. In addition to persistent postconcussion symptoms, the following were considered contraindications to return to sport: abnormal results on neurological examination, signs or symptoms of concussion that manifest on exertion, and significant abnormalities on cognitive testing or imaging studies. This document encouraged team physicians to coordinate a group of individuals to implement progressive aerobic and resistive exercise challenge tests that the injured athlete would have to pass prior to full return to play and to recognize that challenging cognitive effort may exacerbate symptoms of concussion and retard recovery. Furthermore, it was recommended that the team physician discuss the status of injured athletes with parents, caregivers, teachers, certified athletic trainers, and the coaching staff within disclosure regulations.

Again, I found this to be a very useful document, especially for physicians on the sideline responsible for athletes who may have a cerebral concussion. This statement was similar to the Vienna and Prague documents in that it emphasized that concussion severity should be determined by the duration and number of postconcussion symptoms, not by whether there was brief loss of consciousness or even whether amnesia alone was one of the symptoms. This means that concussion severity should not be determined in most cases on the day of concussion, but rather only after all symptoms have resolved.

International Conference on Concussion in Sport, St. Moritz 2006

The final document to be briefly mentioned in this paper will be based on a conference that was held this past spring in St. Moritz, Switzerland. Because it is currently being written, the comments included here must be limited.

The document will focus at least in part on three areas in which there is some concern regarding the Prague statement. The first involves neuropsychological testing and its use, including the question of when it should be used in the management and assessment of concussion. The second involves the concept of simple versus complex concussion; and the third involves the question of whether the same concussion protocols should be followed in the management of cases involving young athletes as are followed

in cases involving adult athletes. Although many other areas will be covered in the forthcoming document, these are three in which there may be significant variance from what was stated in the Prague document.

Conclusions

This subject is perhaps best summarized by the final comment in the 2004 Prague summary, which states, "This protocol represents a work in progress, and, as with all other recommendations or proposals, it must be updated as new information is added to the current state of the literature and understanding of this injury."

Appendix 1

Summary and Agreement Statement of the First International Conference on Concussion in Sport, Vienna 2001 and Summary and Agreement Statement of the 2nd International Conference on Concussion in Sport, Prague 2004

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National Athletic Trainers' Association Position Statement: Management of Sport-Related Concussion

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Concussion consensus statements

Concussion (Mild Traumatic Brain Injury) and the Team Physician: A Consensus Statement*Expert panel:*

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 Robert Pallay, M.D., Hillsborough, New Jersey
 Margot Putukian, M.D., Princeton, New Jersey

Appendix 2**Postconcussion signs/symptoms checklist
(symptoms at time of concussion)**

bell rung _____
 depression _____
 dinged _____
 dizziness _____
 drowsiness _____
 excessive sleep _____
 fatigue _____
 feel "in a fog" _____
 feel "slowed down" _____
 headache _____
 irritability _____
 loss of consciousness _____
 memory problems _____
 nausea _____
 nervousness _____
 numbness/tingling _____
 poor Balance _____
 poor Concentration _____
 ringing in the ears _____
 sadness _____
 sensitivity to Light _____
 sensitivity to Noise _____
 trouble Falling Asleep _____
 vacant stare/glassy eyed _____
 vomiting _____

Appendix 3**Cantu Evidence-Based Grading System for Concussion**

Grade 1 (mild)	No LOC*, PTA† < 30 min, ‡PCSS < 24 h
Grade 2 (moderate)	LOC < 1 min or PTA ≥ 30 min < 24 h or PCSS ≥ 24 h < 7 d
Grade 3 (severe)	LOC ≥ 1 min or PTA ≥ 24 h or PCSS ≥ 7 d

*LOC indicates loss of consciousness.

†PTA indicates posttraumatic amnesia (anterograde/retrograde).

‡PCSS indicates postconcussion signs and symptoms other than amnesia.

(Reprinted with permission from Guskiewicz KM, Bruce SL, Cantu RC, Ferrara MS, Kelly JP, McCrea M, et al: National Athletic Trainers' Association position statement: management of sport-related concussion. *Athl Train* 39:280–297, 2004.)

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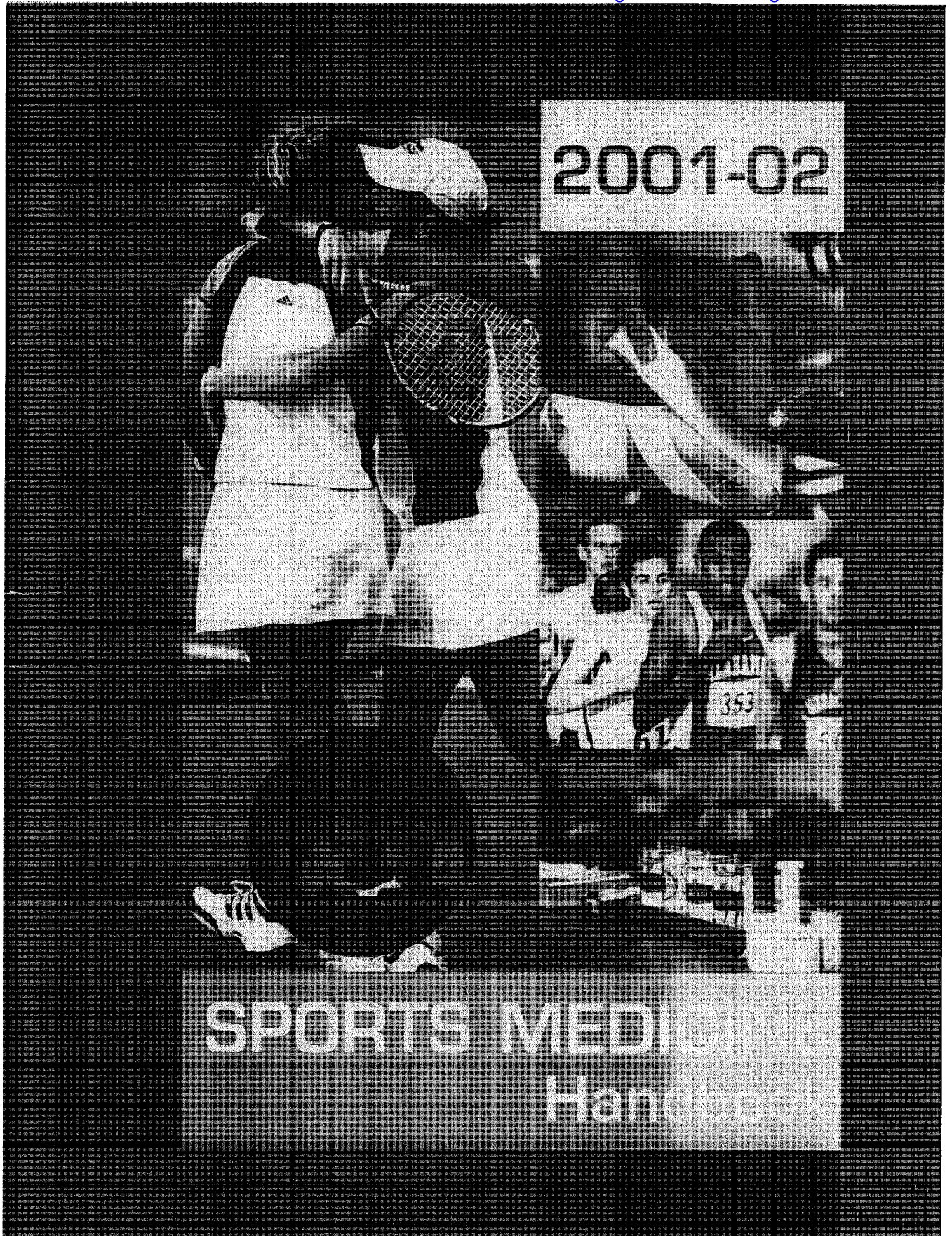
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EXHIBIT 30



NCAA®

GUIDELINE 20

Concussion and Second-Impact Syndrome

June 1994 • Revised July 1997

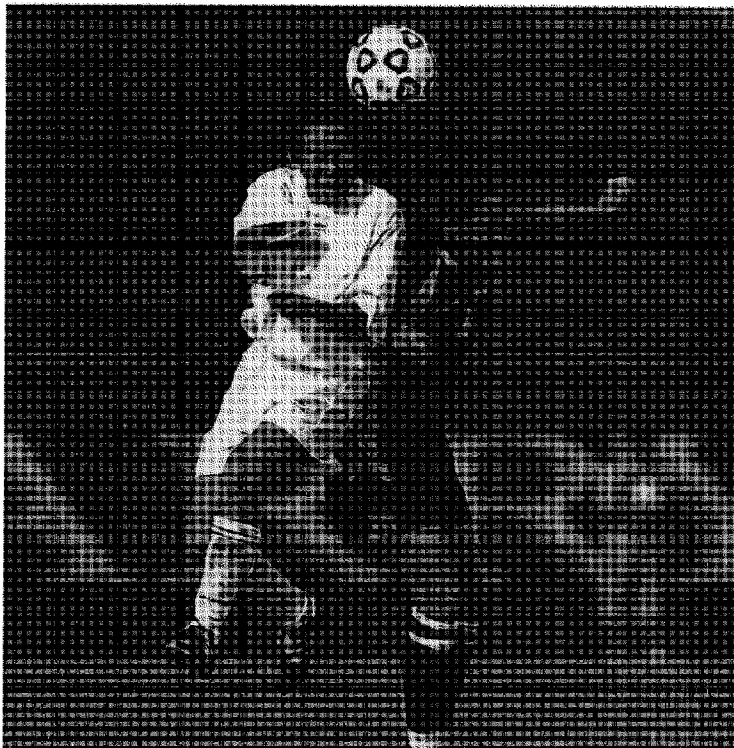
Concussion and the resulting potential complications, such as second-impact syndrome, are potentially life-threatening situations that student-athletes may suffer as a result of their athletics participation. While concussions may occur in almost any contact activity, data from the NCAA Injury Surveillance System (ISS) for the period 1994-96 estimated that more than 1,500 concussions occur annually in college

football. Nine of every 10 head injuries in the sport are reported as concussions. Since no head injury should be considered trivial, proper evaluation and sound decision-making are imperative before the sports medicine profession permits the student-athlete to return to activity.

The definition of concussion is a post-traumatic impairment of neural status. While loss of con-

sciousness and amnesia have been viewed as the primary components of this injury and have formed the basis for most grading scales, some of the mild concussions, the so-called "bell rung" or "ding," with no resulting loss of consciousness or post-traumatic amnesia, may go unrecognized by coaches, athletic trainers, fellow players or team physicians. The symptoms of concussion (Table 1) vary, depending on the degree and extent of injury. **A student-athlete rendered unconscious for any period of time should not be permitted to return to the practice or game in which the head injury occurred. In addition, no student-athlete should be allowed to return to athletics activity while symptomatic.** Prolonged unconsciousness and neurologic abnormalities suggesting intracranial pathology may require urgent neurosurgical consultation or transfer to a trauma center. If there are any questions as to the severity of past head trauma, or if the trauma required intracranial surgery, clearance of the student-athlete should be deferred until further records are obtained or neurosurgical evaluation is performed.

Several grading scales have been proposed to characterize the degrees, potential severity and return-to-play criteria of



Concussion and Second-Impact Syndrome

concussion.^{6,7,8,12,13,15} Unfortunately, these categorizations vary and are not universally accepted. Based on the current lack of consensus among the medical community on management of concussions, the NCAA does not endorse any specific concussion grading scale or return-to-play criteria. Although the grading scales and return-to-play criteria currently in the literature may assist in the clinical decision-making for the student-athlete who has suffered a concussion, these grading scales and return-to-play criteria should not be substituted for the clinical judgment of the examining physician.

Post-Concussion Syndrome

After a head injury, the student-athlete may report multiple symptoms (Table 1). While these symptoms usually are short-lived and resolve spontaneously, some individuals may have persistent symptoms after a concussion. Characteristics of post-concussion syndrome are symptoms such as impaired memory and concentration, persistent headache, fatigue, mood and sleep disturbances and dizziness. The student-athlete with symptoms of post-concussion syndrome should not be considered for return to physical activity until resolution of symptoms occurs. Diagnostic studies such as MRI or CT imaging and/or neu-

ropsychological testing may be indicated and referral to a neurologist or neurosurgeon should be considered.

Multiple Concussions

The athlete who suffers one concussion may be at greater risk for another. Evidence of cognitive impairment and neuroanatomical damage has been reported in some individuals. The number and degree of concussions necessary for permanent impairment is unknown. Return-to-play decisions should be made on an individual basis after the student-athlete has full recovery of neuronal function and can be informed of the potential risks for subsequent concussion and possible complications. As with all concussions, careful review of the mechanism of injury and appropri-

ate changes in the environment that can be made to reduce the likelihood of subsequent concussion should be undertaken.

Second-Impact Syndrome

The medical staff needs to be aware of the rare but often fatal consequence of the second-impact syndrome. This occurs when an individual sustains a second, often minor trauma to the head before the initial symptoms of the first head injury have resolved. The resulting loss of autoregulation of the brain's blood supply could result in vascular engorgement and herniation of the lower brain, causing death. There is a high mortality rate associated with second-impact syndrome.

Table 1
Symptoms of Concussion

Headache	Irritability
Confusion/Disorientation	Hyperexcitability
Tinnitus	Loss of Consciousness
Dizziness	Unsteadiness
Nausea	Visual Disturbance
Amnesia	Concentration Difficulty
Post-traumatic	
Retrograde	

Concussion and Second-Impact Syndrome

Summary

The attending medical staff should not allow a player to resume participation in physical activity while the injured student-athlete is recovering from his/her post-concussive symptoms. All individuals involved in sports, including coaches, athletic trainers, team physicians, student-athletes and parents should be educated in the symptoms of concussion and the need for medical attention in the

event of such an injury. With regard to injury prevention in football, coaches, athletic trainers and medical personnel should strive to help educate players in proper tackling techniques so that these injuries can be minimized. Neck-strengthening exercises are important in preventing rapid acceleration/deceleration injuries that can occur without a direct blow to the head. In addition, proper equipment and maintenance, including adequate helmet

fit (inflation of air bladder in helmet) and shock-absorbing mouthpieces, can be beneficial in preventing concussions. All medical personnel need to be reminded that they should suspect all unconscious student-athletes to have suffered a cervical spine injury until proven otherwise. Special care to the cervical spine should always be used in transporting an unconscious player.

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EXHIBIT 31



Summary and agreement statement of the 2nd International Conference on Concussion in Sport, Prague 2004

P McCrory, K Johnston, W Meeuwisse, M Aubry, R Cantu, J Dvorak, T Graf-Baumann, J Kelly, M Lovell and P Schamasch

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ORIGINAL ARTICLE

Summary and agreement statement of the 2nd International Conference on Concussion in Sport, Prague 2004

P McCrory, K Johnston, W Meeuwisse, M Aubry, R Cantu, J Dvorak, T Graf-Baumann, J Kelly, M Lovell, P Schamasch

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Accepted 7 February 2005

In November 2001, the 1st International Symposium on Concussion in Sport was held in Vienna, Austria to provide recommendations for the improvement of safety and health of athletes who suffer concussive injuries in ice hockey, football (soccer), and other sports. The 2nd International Symposium on Concussion in Sport was organised by the same group and held in Prague, Czech Republic in November 2004. It resulted in a revision and update of the Vienna consensus recommendations, which are presented here.

This paper is a revision and update of the Vienna consensus recommendations developed after the 1st International Symposium on Concussion in Sport.¹ The Prague agreement statement is designed to build on the principles outlined in the original Vienna document and to develop further conceptual understanding of this problem. This document is developed for use by doctors, therapists, health professionals, coaches, and other people involved in the care of injured athletes, whether at the recreational, elite, or professional level.

BACKGROUND PERSPECTIVE

In November 2001, the 1st International Symposium on Concussion in Sport was held in Vienna, Austria. This meeting was organised by the International Ice Hockey Federation (IIHF) in partnership with the Federation Internationale de Football (FIFA) and the International Olympic Committee Medical Commission (IOC). As part of the resulting mandate for the future, the need for leadership and updates was identified. To meet that mandate, the 2nd International Symposium on Concussion in Sport was organised by the same group and held in Prague, Czech Republic in November 2004.

The original aims of the symposia were to provide recommendations for the improvement of safety and health of athletes who suffer concussive injuries in ice hockey, football (soccer), and other sports. To this end a range of experts were invited to both meetings in order to address specific issues of epidemiology, basic and clinical science, injury grading systems, cognitive assessment, new research methods, protective equipment, management, prevention, and long term outcome. At the conclusion of the initial conference, a small group of experts were given a mandate by the conference delegates and organising bodies to draft a document describing the agreement position reached by those in attendance at that meeting. That document was co published in the *British Journal of Sports Medicine*, *Clinical Journal of Sport Medicine*, and *Physician and Sportsmedicine*.¹

The wider interest base resulting from the first meeting and document was reflected by the expanded representation. New groups at the second meeting included trauma surgeons, sport psychologists, and others. This same group has produced the current document as an update of the

original Vienna consensus document and includes a sideline assessment form with a pocket sized summary card for use by clinicians.

This protocol represents a work in progress, and, as with all other recommendations or proposals, it must be updated as new information is added to the current state of the literature and understanding of this injury.

BACKGROUND ISSUES

Definition of concussion

Over 35 years ago, the Committee on Head Injury Nomenclature of the Congress of Neurological Surgeons proposed a "consensus" definition of concussion.^{2,3} This definition was recognised as having a number of limitations in accounting for the common symptoms of concussion. In the Vienna document, a revised consensus definition was proposed as follows: "Sports concussion is defined as a complex pathophysiological process affecting the brain, induced by traumatic biomechanical forces". Several common features that incorporate clinical, pathological, and biomechanical injury constructs that may be used in defining the nature of a concussive head injury include the following.

- (1) Concussion may be caused by a direct blow to the head, face, neck, or elsewhere on the body with an "impulsive" force transmitted to the head.
- (2) Concussion typically results in the rapid onset of short lived impairment of neurological function that resolves spontaneously.
- (3) Concussion may result in neuropathological changes, but the acute clinical symptoms largely reflect a functional disturbance rather than structural injury.
- (4) Concussion results in a graded set of clinical syndromes that may or may not involve loss of consciousness. Resolution of the clinical and cognitive symptoms typically follows a sequential course.
- (5) Concussion is typically associated with grossly normal structural neuroimaging studies.

No changes were made to the definition by the Prague Group beyond noting that in some cases post concussive symptoms may be prolonged or persistent.

Pathophysiological basis of concussion

At this time, there is no existing animal or other experimental model that accurately reflects a sporting concussive injury. It is noted that, in experimental models, of more severe injury a complex cascade of biochemical, metabolic, and gene expression changes occur.⁴ Whether similar metabolic changes occur in sports concussion, however, remains speculative at this time.⁵

Concussion grading scales

The Vienna recommendation that injury grading scales be abandoned in favour of combined measures of recovery in order to determine injury severity (and/or prognosis) and hence individually guide return to play decisions received continued support.

It was also noted that concussion severity can only be determined in retrospect after all concussion symptoms have cleared, the neurological examination is normal, and cognitive function has returned to baseline.⁶ There is limited published evidence that concussion injury severity correlates with the number and duration of acute concussion signs and symptoms and/or degree of impairment on neuropsychological testing.⁷⁻¹² The development of validated injury severity scales continues in the published literature.¹³

Subtypes of concussion

One of the issues speculated on at the Vienna conference was whether concussion represents a unitary phenomenon with a linear spectrum of injury severity or whether different concussion subtypes exist. These subtypes may represent differences in clinical manifestations (confusion, memory problems, loss of consciousness), anatomical localisation (such as cerebral versus brainstem), biomechanical impact (rotational versus linear force), genetic phenotype (apolipoprotein epsilon 4 (ApoE4) positive versus ApoE4 negative), neuropathological change (structural injury versus no structural injury), or an as yet undefined difference. These factors may operate independently or interact with each other. It is clear that the variations in clinical outcome with the same impact force require a more sophisticated approach to the understanding of this phenomenon than currently available.¹⁴

Significance of loss of consciousness

The traditional approach to severe traumatic brain injury using loss of consciousness as the primary measure of injury severity has acknowledged limitations in assessing the severity of sporting concussive injury. Findings in this field describe association of loss of consciousness with specific early deficits but does not necessarily imply severity.¹³⁻¹⁵ As such the presence of loss of consciousness as a symptom would not necessarily classify the concussion as complex (see below).

Significance of amnesia

There is renewed interest in the role of post traumatic amnesia and its role as a surrogate measure of injury severity.¹³⁻¹⁶ Published evidence suggests that the nature, burden, and duration of the clinical post concussive symptoms may be more important than the presence or duration of amnesia alone.⁸⁻¹⁵⁻¹⁷ Further it must be noted that retrograde amnesia varies with the time of measurement after the injury and hence is poorly reflective of injury severity.¹⁸⁻¹⁹

Paediatric concussive injury

The general recommendations outlined in the Vienna document were originally designed for the management of adult sporting concussion. Agreement was reached, however,

that identified those recommendations as relevant and useful to management of children as well. In broad terms it was felt that the recommendations should be applicable to children (defined as 5-18 years of age) whereby children should not be allowed to return to play or training until clinically completely symptom free. In addition, the concept of "cognitive rest" was introduced with special reference to a child's need to limit exertion with activities of daily living and to limit scholastic activities while symptomatic. There was also a recognition by the group that additional research is needed to better clarify the potential differences between adults and children with regard to recovery from injury and to develop cognitive assessment tools that better evaluate the younger athlete.

Formal cognitive assessment is currently problematic until late teen years because of the continuing cognitive maturation that occurs during this period, which, in turn, makes the utility of comparison with either the person's own baseline performance or population norms limited.²⁰

Because of the different physiological response during childhood to head trauma, a conservative return to play approach is recommended. It may be appropriate to extend the amount of time of asymptomatic rest and/or the length of the graded exertion in children and adolescents. Future research is needed in this area.

A NEW CLASSIFICATION OF CONCUSSION IN SPORT

Historically, concussions have been classified with a number of different grading systems. In the Vienna Statement, this approach was abandoned. One of the key developments by the Prague Group is the understanding that concussion may be categorised for management purposes as either simple or complex.

Simple concussion

In simple concussion, an athlete suffers an injury that progressively resolves without complication over 7-10 days. In such cases, apart from limiting playing or training while symptomatic, no further intervention is required during the period of recovery, and the athlete typically resumes sport without further problem. Formal neuropsychological screening does not play a role in these circumstances, although mental status screening should be a part of the assessment of all concussed athletes. Simple concussion represents the most common form of this injury and can be appropriately managed by primary care physicians or by certified athletic trainers working under medical supervision.²¹ The cornerstone of management is rest until all symptoms resolve and then a graded programme of exertion before return to sport. All concussions mandate evaluation by a medical doctor.

Complex concussion

Complex concussion encompasses cases where athletes suffer persistent symptoms (including persistent symptom recurrence with exertion), specific sequelae (such as concussive convulsions), prolonged loss of consciousness (more than one minute), or prolonged cognitive impairment after the injury. This group may also include athletes who suffer multiple concussions over time or where repeated concussions occur with progressively less impact force. In this group, there may be additional management considerations beyond simple return to play advice. Formal neuropsychological testing and other investigations should be considered in complex concussions. It is envisaged that such athletes would be managed in a multidisciplinary manner by doctors with specific expertise in the management of concussive injury such as a sport medicine doctor with experience in concussion, sports neurologist, or neurosurgeon.

CLINICAL ISSUES

Pre-participation physical examination

Recognising the importance of concussion history, and appreciating the fact that many athletes will not recognise all the concussions they may have suffered in the past, a detailed concussion history is of value.²²⁻²⁵ Such a history may identify athletes that fit into the “complex” category outlined above and provides an opportunity for the doctor to educate the athlete about the significance of concussive injury.

A structured concussion history should include specific questions as to previous symptoms of a concussion, not just perceived number of past concussions. It is also worth noting that dependence on the recall of concussive injuries by team mates or coaches has been shown to be unreliable.²² The clinical history should also include information about all previous head, face, or neck injuries, as these may have clinical relevance to the present injury. It is worth emphasising that, with maxillofacial and neck injuries, co-existent concussive injuries may be missed unless specifically assessed. Specific questions pertaining to disproportionate impact versus symptom severity matching may alert the clinician to a progressively increasing vulnerability to injury.

As part of the clinical history, it is advised that details on protective equipment used at the time of injury be sought, both for recent and remote injuries. The benefit of this approach allows modification and optimisation of protective behaviour and an opportunity for education.

It is specifically recommended that:

- (1) both a baseline cognitive assessment (such as the Prague SCAT test in the absence of computerised neuropsychological testing) and symptom score is performed as part of the pre-participation evaluation;
- (2) although formal baseline neuropsychological screening may be beyond the resources of many sports or individual athletes, it is recommended that, in organised high risk sports, consideration be given to having cognitive evaluation regardless of the age or level of performance.

Signs and symptoms of acute concussion

The suspected diagnosis of sports concussion made on the sideline is applicable to both medical and non-medical personnel and can include clinical symptoms, physical signs, cognitive impairment, and/or loss of consciousness.

If any one of the following symptoms or problems is present, a head injury should be suspected and appropriate management instituted. These will be summarised on the sideline concussion assessment tool (SCAT) that accompanies this document (fig 1).

- (a) Cognitive features (see below)
 - Unaware of period, opposition, score of game
 - Confusion
 - Amnesia
 - Loss of consciousness
- (b) Typical symptoms (see SCAT (fig 1) for standard symptom scale); other symptoms such as a subjective feeling of slowness and fatigue after an impact may indicate that a concussion has occurred or has not fully resolved.²⁶
 - Headache or pressure in the head
 - Balance problems or dizziness
 - Nausea

Feeling “dinged”, “foggy”, stunned, or “dazed”

Visual problems for example, seeing stars or flashing lights, double vision

Hearing problems for example, ringing in the ears

Irritability or emotional changes

(c) Physical signs

Loss of consciousness/impaired conscious state

Poor coordination or balance

Concussive convulsion/impact seizure

Gait unsteadiness/loss of balance

Slow to answer questions or follow directions

Easily distracted, poor concentration

Displaying inappropriate emotions for example, laughing, crying

Vomiting

Vacant stare/glassy eyed

Slurred speech

Personality changes

Inappropriate playing behaviour for example, running in the wrong direction

Significantly decreased playing ability

Sideline evaluation of cognitive function is an essential component in the assessment of this injury. Brief neuropsychological test batteries that assess attention and memory function have been shown to be practical and effective. Such tests include the Maddocks questions²⁷ and the Standardised assessment of concussion.²⁸ It is worth noting that standard orientation questions for example, time, place, person have been shown to be unreliable in the sporting situation when compared with memory assessment.²⁷⁻²⁹

It is recognised, however, that abbreviated testing paradigms are designed for rapid concussion evaluation on the sidelines and are not meant to replace comprehensive neuropsychological testing, which is sensitive enough to detect subtle deficits that may exist beyond the acute episode, nor should they be used as a stand-alone tool for the ongoing management of sports concussions. It should also be recognised that the appearance of symptoms may be delayed several hours after a concussive episode.

Convulsive and motor phenomena

A variety of acute motor phenomena for example, tonic posturing or convulsive movements may accompany a concussion.³⁰⁻³¹ Although dramatic, these clinical features are generally benign and require no specific management beyond the standard treatment for the underlying concussive injury.

Development of the sport concussion assessment tool (SCAT)

Figure 1 outlines the SCAT. The intent was to create a standardised tool that could be used for patient education as well as for physician assessment of sports concussion. The SCAT was developed by combining the following existing tools into a new standardised tool:

- (1) Sideline evaluation for concussion.²⁸⁻²⁹
- (2) Management of concussion sports palm card; American Academy of Neurology and the Brain Injury Association.³²
- (3) Standardised assessment of concussion.³³
- (4) Sideline concussion check; UPMC, Thinksafe, Sports Medicine New Zealand Inc and the Brain Injury Association.

A

This tool represents a standardized method of evaluating people after concussion in sport. This Tool has been produced as part of the Summary and Agreement Statement of the Second International Symposium on Concussion in Sport, Prague 2004

Sports concussion is defined as a complex pathophysiological process affecting the brain, induced by traumatic biomechanical forces. Several common features that incorporate clinical, pathological and biomechanical injury constructs that may be utilized in defining the nature of a concussive head injury include:

1. Concussion may be caused either by a direct blow to the head, face, neck or elsewhere on the body with an 'impulsive' force transmitted to the head.
2. Concussion typically results in the rapid onset of short-lived impairment of neurological function that resolves spontaneously.
3. Concussion may result in neuropathological changes but the acute clinical symptoms largely reflect a functional disturbance rather than structural injury.
4. Concussion results in a graded set of clinical syndromes that may or may not involve loss of consciousness. Resolution of the clinical and cognitive symptoms typically follows a sequential course.
5. Concussion is typically associated with grossly normal structural neuroimaging studies.

Post Concussion Symptoms

Ask the athlete to score themselves based on how they feel now. It is recognized that a low score may be normal for some athletes, but clinical judgment should be exercised to determine if a change in symptoms has occurred following the suspected concussion event.

It should be recognized that the reporting of symptoms may not be entirely reliable. This may be due to the effects of a concussion or because the athlete's passionate desire to return to competition outweighs their natural inclination to give an honest response.

If possible, ask someone who knows the athlete well about changes in affect, personality, behavior, etc.

Remember, concussion should be suspected in the presence of ANY ONE or more of the following:

- Symptoms (such as headache), or
- Signs (such as loss of consciousness), or
- Memory problems

Any athlete with a suspected concussion should be monitored for deterioration (i.e., should not be left alone) and should not drive a motor vehicle.

For more information see the "Summary and Agreement Statement of the Second International Symposium on Concussion in Sport" in the: Clinical Journal of Sport Medicine 2005; xx(xx): xxx-x British Journal of Sports Medicine 2005; xx(xx): xxx-x Neurosurgery 2005; ; xx(xx): xxx-x Physician and Sportsmedicine 2005; xx(xx): xxx-x This tool may be copied for distribution to teams, groups and organizations.



The SCAT Card (Sport Concussion Assessment Tool) Athlete Information

What is a concussion? A concussion is a disturbance in the function of the brain caused by a direct or indirect force to the head. It results in a variety of symptoms (like those listed below) and may, or may not, involve memory problems or loss of consciousness.

How do you feel? You should score yourself on the following symptoms, based on how you feel now.

Post Concussion Symptom Scale

	None	Moderate	Severe
Headache	0 1 2 3 4 5 6		
"Pressure in head"	0 1 2 3 4 5 6		
Neck Pain	0 1 2 3 4 5 6		
Balance problems or dizzy	0 1 2 3 4 5 6		
Nausea or vomiting	0 1 2 3 4 5 6		
Vision problems	0 1 2 3 4 5 6		
Hearing problems / ringing	0 1 2 3 4 5 6		
"Don't feel right"	0 1 2 3 4 5 6		
Feeling "dinged" or "dazed"	0 1 2 3 4 5 6		
Confusion	0 1 2 3 4 5 6		
Feeling slowed down	0 1 2 3 4 5 6		
Feeling like "in a fog"	0 1 2 3 4 5 6		
Drowsiness	0 1 2 3 4 5 6		
Fatigue or low energy	0 1 2 3 4 5 6		
More emotional than usual	0 1 2 3 4 5 6		
Irritability	0 1 2 3 4 5 6		
Difficulty concentrating	0 1 2 3 4 5 6		
Difficulty remembering	0 1 2 3 4 5 6		

(follow up symptoms only)

Sadness	0 1 2 3 4 5 6
Nervous or Anxious	0 1 2 3 4 5 6
Trouble falling asleep	0 1 2 3 4 5 6
Sleeping more than usual	0 1 2 3 4 5 6
Sensitivity to light	0 1 2 3 4 5 6
Sensitivity to noise	0 1 2 3 4 5 6
Other: _____	0 1 2 3 4 5 6

What should I do?

Any athlete suspected of having a concussion should be removed from play, and then seek medical evaluation.

Signs to watch for:

Problems could arise over the first 24-48 hours. You should not be left alone and must go to a hospital at once if you:

- Have a headache that gets worse
- Are very drowsy or can't be awakened (woken up)
- Can't recognize people or places
- Have repeated vomiting
- Behave unusually or seem confused; are very irritable
- Have seizures (arms and legs jerk uncontrollably)
- Have weak or numb arms or legs
- Are unsteady on your feet; have slurred speech




Remember, it is better to be safe. Consult your doctor after a suspected concussion.

What can I expect?

Concussion typically results in the rapid onset of short-lived impairment that resolves spontaneously over time. You can expect that you will be told to rest until you are fully recovered (that means resting your body and your mind). Then, your doctor will likely advise that you go through a gradual increase in exercise over several days (or longer) before returning to sport.

Figure 1 Sport concussion assessment tool (SCAT).

B

The SCAT Card

(Sport Concussion Assessment Tool)
Medical Evaluation

Name: _____ Date: _____

Sport/Team: _____ Mouth guard? Y N

1) SIGNS
 Was there loss of consciousness or unresponsiveness? Y N
 Was there seizure or convulsive activity? Y N
 Was there a balance problem / unsteadiness? Y N

2) MEMORY
Modified Maddocks questions (check correct)
 At what venue are we? ____; Which half is it? ____; Who scored last? ____
 What team did we play last? ____; Did we win last game? ____

3) SYMPTOM SCORE
 Total number of positive symptoms (from reverse side of the card) = ____

4) COGNITIVE ASSESSMENT

5 word recall	(Examples)	Immediate	Delayed
			(after concentration tasks)
Word 1 _____	cat	_____	_____
Word 2 _____	pen	_____	_____
Word 3 _____	shoe	_____	_____
Word 4 _____	book	_____	_____
Word 5 _____	car	_____	_____

Months in reverse order:
 Jun-May-Apr-Mar-Feb-Jan-Dec-Nov-Oct-Sep-Aug-Jul (Circle incorrect)
 or
Digits backwards (check correct)
 5-2-8 3-9-1 _____
 6-2-9-4 4-3-7-1 _____
 8-3-2-7-9 1-4-9-3-6 _____
 7-3-9-1-4-2 5-1-8-4-6-8 _____

Ask delayed 5-word recall now

5) NEUROLOGIC SCREENING

	Pass	Fail
Speech	_____	_____
Eye Motion and Pupils	_____	_____
Pronator Drift	_____	_____
Gait Assessment	_____	_____

Any neurologic screening abnormality necessitates formal neurologic or hospital assessment

6) RETURN TO PLAY
 Athletes should not be returned to play the same day of injury. When returning athletes to play, they should follow a stepwise symptom-limited program, with stages of progression. For example:

- rest until asymptomatic (physical and mental rest)
- light aerobic exercise (e.g. stationary cycle)
- sport-specific training
- non-contact training drills (start light resistance training)
- full contact training after medical clearance
- return to competition (game play)

There should be approximately 24 hours (or longer) for each stage and the athlete should return to stage 1 if symptoms recur. Resistance training should only be added in the later stages. Medical clearance should be given before return to play.

Instructions:

This side of the card is for the use of medical doctors, physiotherapists or athletic therapists. In order to maximize the information gathered from the card, it is strongly suggested that all athletes participating in contact sports complete a baseline evaluation prior to the beginning of their competitive season. This card is a suggested guide only for sports concussion and is not meant to assess more severe forms of brain injury. **Please give a COPY of this card to the athlete for their information and to guide follow-up assessment.**

Signs:

Assess for each of these items and circle Y (yes) or N (no).

Memory:

Select any 5 words (an example is given). Avoid choosing related words such as "dark" and "moon" which can be recalled by means of word association. Read each word at a rate of one word per second. The athlete should not be informed of the delayed testing of memory (to be done after the reverse months and/or digits). Choose a different set of words each time you perform a follow-up exam with the same candidate.

Concentration / Attention:

Ask the athlete to recite the months of the year in reverse order, starting with a random month. Do not start with December or January. Circle any months not recited in the correct sequence.

For digits backwards, if correct, go to the next string length. If incorrect, read trial 2. Stop after incorrect on both trials.

Neurologic Screening:

Trained medical personnel must administer this examination. These individuals might include medical doctors, physiotherapists or athletic therapists. Speech should be assessed for fluency and lack of slurring. Eye motion should reveal no diplopia in any of the 4 planes of movement (vertical, horizontal and both diagonal planes). The pronator drift is performed by asking the patient to hold both arms in front of them, palms up, with eyes closed. A positive test is pronating the forearm, dropping the arm, or drift away from midline. For gait assessment, ask the patient to walk away from you, turn and walk back.

Return to Play:

A structured, graded exertion protocol should be developed; individualized on the basis of sport, age and the concussion history of the athlete. Exercise or training should be commenced only after the athlete is clearly asymptomatic with physical and cognitive rest. Final decision for clearance to return to competition should ideally be made by a medical doctor.

For more information see the "Summary and Agreement Statement of the Second International Symposium on Concussion in Sport" in the: *Clinical Journal of Sport Medicine* 2005; in press
British Journal of Sports Medicine 2005; **39**:196-204
Neurosurgery 2005; in press
Physician and Sportsmedicine 2005; in press

Figure 1 Continued.

- (5) McGill abbreviated concussion evaluation (ACE) (unpublished).
- (6) National Hockey League physician evaluation form (unpublished).
- (7) The UK Jockey Club assessment of concussion.³⁴
- (8) Maddocks questions.²⁷

The authors gave input through a process of collaboration and iterative review. The SCAT was evaluated for face and content validity on the basis of scientific literature³⁵ and clinical experience of the authors. The memory questions, specifically, were modified from the validated Maddocks questions to make these questions less football specific.²⁷

INVESTIGATIONAL ISSUES

Neuropsychological assessment after concussion

The application of neuropsychological testing in concussion has been shown to be of value and continues to contribute significant information in concussion evaluation.^{10 11 36 37} It has been shown that cognitive recovery may precede or follow clinical symptom resolution, suggesting that the assessment of cognitive function should be an important component in any return to play protocol.¹² It must be emphasised, however, that neuropsychological assessment should not be the sole basis of a return to play decision but rather be seen as an aid to the clinical decision making. Although neuropsychological screening may be performed or interpreted by other healthcare professionals, the final return to play decision should remain a medical one in which a multidisciplinary approach has been taken.

Neuropsychological testing should not be performed while the athlete is symptomatic because it adds nothing to return to play decisions, and it may contaminate the testing process by allowing practice effects to confound the results. In certain cases, however, serial follow up after the injury is valuable, both as a means to encourage athlete compliance and for comparison purposes.

Over riding principles common to all neuropsychological test batteries is the need for and benefit of baseline testing before injury and serial follow up. Recent work with computerised platforms, however, suggests that performance variability may be a key measure for acute concussion diagnosis even in the absence of a baseline test. This strategy is currently the subject of research. Inherent problems with most neuropsychological tests include the normal ranges, sensitivity and specificity of tests, and practice or learning effect, as well as the observation that players may return to baseline while still symptomatic.³⁶ Computerised testing using infinitely variable test paradigms may overcome some of these concerns. Computerised testing also has the logistical advantage that the tests may be administered by the team doctor (or be web based) rather than requiring a neuro psychologist for a formal assessment. The strengths and weaknesses of such testing have been reviewed.³⁷

It is recommended that neuropsychological testing remain one of the cornerstones of concussion evaluation in complex concussion. It is not currently regarded as important in the evaluation of simple concussion. Although this modality contributes significantly to both the understanding of the injury and management of the individual athlete, neuropsychological testing should not be the sole basis of management decisions, either for continued time out or return to play decisions.

Objective balance assessment

Balance testing, either with computerised platforms or clinical assessment, may offer additional information in concussed athletes and may be used as a part of the overall

concussion management strategy, particularly where symptoms or signs indicate a balance component.³⁸

Neuroimaging

It was recognised in the Vienna agreement document that conventional structural neuroimaging is usually normal in concussive injury. Given that caveat, the following suggestions are made. Computed tomography (or, where available, magnetic resonance imaging) of the brain contributes little to concussion evaluation, but should be used whenever suspicion of an intracerebral structural lesion exists. Examples of such situations may include prolonged disturbance of conscious state, focal neurological deficit, or worsening symptoms.

Newer structural magnetic resonance imaging modalities, including gradient echo, perfusion, and diffusion weighted imaging, have greater sensitivity for structural abnormalities, but the lack of published studies as well as the absence of pre injury neuroimaging data limits the usefulness of this approach in clinical management at the present time.

In addition, the predictive value of various magnetic resonance imaging abnormalities that may be incidentally discovered is not established. Although there have been some compelling findings with promising new functional imaging technologies for example, positron emission tomography (PET), single photon emission computed tomography (SPECT), and functional magnetic resonance imaging (fMRI) they are still at early stages of development.^{39 41}

Although neuroimaging may play a part in the assessment of complex sports concussions or more severe brain injury, it is not essential for simple concussive injury.

Genetic testing

Genotyping has been shown to be of benefit in traumatic brain injury. Published studies have shown that ApoE4 is a risk factor for adverse outcome after all levels of brain injury.^{42 48} Similarly ApoE4 has been shown to be a risk factor for the development of chronic traumatic encephalopathy in boxers.⁴⁹ The significance of ApoE4 in sports concussion risk or injury outcome is unclear. Other published studies have noted the association of a particular calcium subunit gene abnormality with brain swelling after minor head trauma.⁵⁰ Although still in the early stages of understanding, routine genetic screening cannot be recommended at the present time. Furthermore, doctors are urged to be mindful of the ethical implications of such testing.

Experimental concussion assessment modalities

Different electrophysiological recording techniques such as evoked response potential and electroencephalogram have shown reproducible abnormalities in the post concussive state.^{51 53} However, not all studies reliably differentiated concussed athletes from controls.^{54 57} The clinical significance of these changes remains to be established.

In addition, biochemical serum markers of brain injury (including S 100b, NSE, MBP, GFAP) have been proposed as means by which cellular damage may be detected if present.^{58 59} However, there is currently not sufficient evidence to justify the use of these markers clinically.

CONCUSSION MANAGEMENT

Acute injury

When a player shows any symptoms or signs of a concussion, the following should be applied.

- (1) The player should not be allowed to return to play in the current game or practice.

- (2) The player should not be left alone, and regular monitoring for deterioration is essential over the initial few hours after injury.
- (3) The player should be medically evaluated after the injury.
- (4) Return to play must follow a medically supervised stepwise process.

A player should never return to play while symptomatic. "When in doubt, sit them out!"

Return to play protocol

As described above, most injuries will be simple concussions, and such injuries recover spontaneously over several days. In these situations, it is expected that an athlete will proceed rapidly through the stepwise return to play strategy.⁶⁰

During this period of recovery in the first few days after an injury, it is important to emphasise to the athlete that physical and cognitive rest is required. Activities that require concentration and attention may exacerbate the symptoms and as a result delay recovery.

The return to play after a concussion follows a stepwise process:

- (1) No activity, complete rest. Once asymptomatic, proceed to level 2.
- (2) Light aerobic exercise such as walking or stationary cycling, no resistance training.
- (3) Sport specific exercise for example, skating in hockey, running in soccer; progressive addition of resistance training at steps 3 or 4.
- (4) Non contact training drills.
- (5) Full contact training after medical clearance.
- (6) Game play.

With this stepwise progression, the athlete should continue to proceed to the next level if asymptomatic at the current level. If any post concussion symptoms occur, the patient should drop back to the previous asymptomatic level and try to progress again after 24 hours.

In cases of complex concussion, the rehabilitation will be more prolonged, and return to play advice will be more circumspect. It is envisaged that complex cases should be managed by doctors with a specific expertise in the management of such injuries.

An additional consideration in return to play is that concussed athletes should not only be symptom free but also should not be taking any pharmacological agents/drugs that may affect or modify the symptoms of concussion. If antidepressant treatment is started during the management of a complex concussion, the decision to return to play while still receiving such medication must be considered carefully by the clinician concerned (see below).

In professional sport, where there are team doctors experienced in concussion management as well as access to immediate that is, sideline neurocognitive assessment, return to play management is often more rapid, but it must still follow the same basic principles, namely full clinical and cognitive recovery before consideration of return to play.

Role of pharmacological treatment

Pharmacological treatment in sports concussion may be applied in two distinct situations: (a) management of specific symptoms for example, sleep disturbance, anxiety in complex concussion; (b) to modify the underlying pathophysiology of the condition with the aim of shortening the duration of the concussion symptomatology.⁶¹

In broad terms, this approach to management should be only considered in complex sports concussions and by clinicians experienced in concussion management.

Sports psychology

In addition, sport psychology approaches may have potential application in this injury, particularly in complex concussion.⁶² Care givers are also encouraged to evaluate the concussed athlete for affective symptoms such as depression as these may be common in concussion.⁶⁰

OTHER ISSUES

Prevention

There is no clinical evidence that currently available protective equipment will prevent concussion. In certain sports, protective equipment may prevent other forms of head injury which may be an important issue for those sports.

Consideration of rule changes for example, no head checking in ice hockey to reduce the head injury rate may be appropriate where a clear cut mechanism is implicated in a particular sport. Similarly, rule enforcement is a critical aspect of such approaches, and referees play an important role.

An important consideration in the use of protective equipment is the concept of risk compensation.⁶³ This is where the use of protective equipment results in behavioural change such as the adoption of more dangerous playing techniques, which can result in a paradoxical increase in injury rates. This may be a particular concern in child and adolescent athletes in whom head injury rates are often higher than in adult athletes.⁶⁴

Medicolegal considerations

Although agreement exists on the principal messages conveyed in this document, we acknowledge that the science of concussion is at an early stage, and therefore management and return to play decisions remain largely in the realm of clinical judgment on an individualised basis.

Education

As the ability to treat or reduce the effects of concussive injury after the event is minimal, education of athletes, colleagues, and the general public is a mainstay of progress in this field. Athletes and their healthcare providers must be educated about the detection of concussion, its clinical features, assessment techniques, and principles of safe return to play. Methods to improve education including web based resources, educational videos, and international outreach programmes such as Think First (www.thinkfirst.ca) are important in delivering the message. In addition, concussion working groups plus the support and endorsement of enlightened sport groups such as FIFA, IOC, and IIHF who initiated this endeavour have enormous value and must be pursued vigorously.

The promotion of fair play and respect for opponents are ethical values that should be encouraged in all sports and sporting associations. Similarly coaches, parents, and managers play an important part in ensuring that these values are implemented on the field of play.

Research methods

A number of research protocols and data evaluating concussion injury assessment, injury susceptibility, and brain function after injury were presented at both the Vienna and Prague conferences. Although they offer great potential for injury assessment, all of these techniques must be considered experimental at this time. Elite and professional teams are well placed to contribute to these efforts through athlete

recruitment for studies showing the scientific value of such approaches.

Such research is essential in contributing to the science of concussion and will potentially provide valuable information for such important issues as clinical management, return to play guidelines, and long term outcome. Therefore research should be continued and encouraged, by both academics and sporting organisations.

Future

The issue of sports concussion management is continually evolving, and the usefulness of expert consensus in establishing a standard of care has been demonstrated by the Vienna agreement. The consensus group established at that meeting has provided continuing leadership in this field based on the initial mandate established at that time.¹ We expect that this Prague agreement will be revised and updated at future meetings.

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ECHO

Human articular cartilage fails to respond to physical training



Please visit the British Journal of Sports Medicine website (www.bjsportmed.com) for a link to the full text of this article.

An in vivo study has suggested that the amount human articular cartilage deforms after exercise is independent of physical training, as shown by responses of patellar and tibial cartilage and between professional athletes and others.

Deformity of patellar cartilage ranged from -5.9% to +2.8%, in a dose dependent manner, for various activities in 12 healthy young volunteers (-5.9% knee bends, -5.0% running, -4.7% squatting, -4.5% cycling, and +2.8% walking). Deformity of femorotibial cartilage, however, was greatest for high impact loading - as in jumps from 40 cm height (-7%) but small for other activities. There was no significant difference in deformity of patellar cartilage in weightlifters (-2.9%), bobsleigh sprinters (-3.9%), or non athletes (-4.1%).

Deformity was measured by magnetic resonance imaging and three dimensional image analysis before and after exercise. Of the 50 volunteers, six men and six women did patellar exercises and five men and five women femorotibial exercises (knee bends, (one leg) static loading of weight, and jumps from 40 cm height onto one leg. Seven weightlifters and seven bobsleigh sprinters were compared with 14 healthy young men for deformity of patellar cartilage induced by knee bends.

This is the first in vivo study of human patellar and femorotibial cartilage response to such a wide range of physical activities. The authors hypothesised from animal studies that physical training would result in less deformity, but this seems not to be true for humans. Understanding how cartilage behaves in vivo is important for understanding the process of osteoarthritis and the local environment of transplanted cartilage.

▲ Eckstein F, *et al.* *Annals of the Rheumatic Diseases* 2005;64:291-295.

EXHIBIT 32



NCAA®

GUIDELINE 2i

Concussion or Mild Traumatic Brain Injury (mTBI) in the Athlete

June 1994 • Revised July 2004

Over 300,000 concussions occur every year, and participation in sport is a common cause of these injuries. These injuries are often difficult to detect, with athletes often underreporting their injury, minimizing their importance, or not recognizing that an injury has occurred. At the college level, these injuries are more common in certain sports such as football, ice hockey, men's and women's soccer, and men's lacrosse. However, they also account for a significant percentage of injuries in men's and women's basketball, women's lacrosse, and other sports traditionally considered "non-contact".

The incidence in helmeted versus non-helmeted sports is also similar. In the years 2000-2002, the rate of concussion during games per 1000 athlete exposures for football was 3.1, for men's ice hockey 2.4, for men's wrestling 1.6 and for men's lacrosse 1.4, respectively, 2.4 for women's ice hockey, 2.1 for women's soccer, 1.7 for men's soccer, 0.8 for field hockey, 0.8 for women's lacrosse, 0.7 for women's basketball, and 0.5 for men's basketball, accounting for between 6.4 and 18.3% of the injuries for these sports as reported by the NCAA Injury Surveillance System (ISS).

Assessment and management of concussive injuries, and return to play decisions remain some of the most difficult responsibilities facing the sports medicine team. There are potentially serious complications of multiple or severe concussions including second impact syndrome, post-concussive syndrome, or post-traumatic encephalopathy. Though there is some controversy as to the existence of second impact syndrome, where a second impact with potentially catastrophic consequences occurs prior to the full recovery after a first insult, the risks include severe cognitive compromise as well as death. Other associated injuries which can occur in the setting of concussion include seizures, cervical spine injuries, skull fractures, and/or intracranial bleed. Due to the serious nature of mild traumatic brain injury, as well as these serious potential complications, it is imperative that the health care professionals taking care of athletes are able to recognize, evaluate, and treat these injuries in a complete and progressive fashion.

Concussion or mild traumatic brain injury (mTBI) has been defined as "a complex pathophysiological process affecting the brain, induced by traumatic biomechanical forces." Although concussion most commonly occurs after a direct blow to the head, it can occur after a blow elsewhere that is transmitted



Concussion or Mild Traumatic Brain Injury

to the head. Concussions can be defined by the clinical features, pathophysiological changes and / or biomechanical forces that occur, and these have been described in the literature. The neurochemical and neurometabolic changes that occur in concussive injury have been elucidated, and exciting research is underway describing the genetic factors that may play a role in determining which individuals are at an increased risk for sustaining brain injury.

Most commonly, concussion is characterized by the rapid onset of cognitive impairment that is self limited and spontaneously resolves. The acute symptoms of concussion, listed below, are felt to reflect a functional disturbance in cognitive function instead of structural abnormalities, which is why diagnostic tests such as magnetic resonance imaging (MRI) and computerized tomography (CT) scans are most often normal. These studies may have their role in assessing and evaluating the head injured athlete whenever there is concern for the associated injuries of skull fracture, intracranial bleed, seizures, when there is concern for structural abnormalities or when the symptoms of an athlete persist or deteriorate.

Concussion is associated with clinical scenarios that often clear spontaneously, and may or may not be associated with loss of con-

sciousness (LOC).

The sideline evaluation of the brain injured athlete should include an assessment of airway, breathing, and circulation (ABC's), followed by an assessment of the cervical spine and skull for associated injury. The sideline evaluation should also include a neurological and mental status examination and some form of brief neurocognitive testing to assess memory function and attention. This can be in the form of questions regarding the particular practice or competition, previous game results, and remote and recent memory, as well as questions to test the athlete's recall of words, months of the year backwards and calculations. Special note should be made regarding the presence and duration of retrograde or anterograde amnesia, as well as the presence and duration of confusion. A timeline of injury and the

presence of symptoms should be noted. These sideline tests should be performed and repeated as necessary, but do not take the place of other comprehensive neuropsychological tests.

Once an injury occurs and an initial assessment has been made, it is important to determine an initial plan of action, which includes deciding on whether additional referral to a physician and/or emergency department should take place, as well as determining the follow-up care. The medical staff should also determine whether additional observation or hospital admission should be considered.

Follow up care and instructions should be given to the athlete, and ensuring that they are not left alone for an initial period of time should be considered. Athletes should avoid alcohol or other substances

Table 1
SIGNS AND SYMPTOMS OF mTBI

Loss of consciousness (LOC)	Visual Disturbances
Confusion	(Photophobia, blurry Phono/
Post-traumatic amnesia (PTA)	photophobia vision,
Retrograde amnesia (RGA)	double vision)
Disorientation	Disequilibrium
Delayed verbal and motor responses	Feeling "in a fog", "zoned out"
Inability to focus	Vacant stare
Headache	Emotional lability
Nausea / Vomiting	Dizziness
Excessive drowsiness	Slurred/ incoherent speech

Concussion or Mild Traumatic Brain Injury

that will impair their cognitive function, and also avoid aspirin and other medications that can increase their risk of bleeding.

As mentioned previously, conventional imaging studies such as MRI and CT scans are usually normal in mTBI. However, these studies are considered an adjunct when any structural lesion, such as an intracranial bleed or fracture, is suspected. If an athlete experiences prolonged loss of consciousness, confusion, seizure activity, focal neurologic deficits, or persistent clinical or cognitive symptoms, then additional testing may be indicated.

There are several grading systems and return to play guidelines in the literature regarding concussion in sport (AAN, Torg, Cantu). However, there may be limitations because they presume that LOC is associated with more severe injuries. It has been demonstrated that LOC does not correlate with severity of injury in patients presenting to an emergency depart-

ment with closed head injury, and has also been demonstrated in athletes with concussion. (Lovell '99). It has been further demonstrated that retrograde amnesia (RGA), post traumatic amnesia (PTA), as well as the duration of confusion & mental status changes greater than 5 minutes may be more sensitive indicators of injury severity (Collins '03). More recent grading systems have been published which attempt to take into account the expanding research in the field of mTBI in athletes. Though it is useful to become familiar with these guidelines, it is important to remember that many of these injuries are best treated in an individual fashion (Cantu '01, Vienna Conference, NATA '04).

Several recent publications have endorsed the use of neurocognitive or neuropsychological testing as the cornerstone of concussion evaluation. These tests provide a reliable assessment and quantification of brain function by examining brain-behavior relationships. These tests are designed to measure a broad

range of cognitive function including speed of information processing, memory recall, attention and concentration, reaction time, scanning and visual tracking ability, and problem solving ability. Several computerized versions of these tests have also been designed to improve the availability of these tests, and make them easier to distribute and utilize. Ideally, these tests are performed prior to the season as a "baseline" with which post-injury tests can be compared. Despite the utility of neuropsychological test batteries in the assessment and treatment of concussion in athletes, several questions remain unanswered. Further research is needed to understand the complete role of neuropsychological testing.

Given these limitations, it is essential that the medical care team taking care of athletes continue to rely on their clinical skills in evaluating the head injured athlete to the best of their ability. It is essential that no athlete be allowed to return to participation when any symptoms, including mild headache, persist. It has also been recommended that for any injury which involves significant symptoms, long duration of symptoms, or difficulties with memory function (either retrograde or anterograde), not be allowed to return to play during the same day of competition. The duration of time that an athlete should be kept

Table 2
SYMPTOMS OF POST-CONCUSSION SYNDROME

Loss of intellectual capacity	Fatigue
Poor recent memory	Irritability
Personality changes	Phono/ photophobia
Headaches	Sleep disturbances
Dizziness	Sleep disturbances
Lack of concentration	Depressed mood
Poor attention	Anxiety

Concussion or Mild Traumatic Brain Injury

out of physical activity is unclear, and in most instances, individualized return to play decisions should be made. These decisions will often depend on the clinical symptoms, as well as previous history of concussion, and severity of previous concussions. Additional factors include the sport, position, age, support system for the athlete, and the overall "readiness" of the athlete to return to sport.

Once an athlete is completely asymptomatic the return to play

progression should occur in a step-wise fashion with gradual increments in physical exertion and risk of contact. After a period of remaining asymptomatic, the first step is an "exertional challenge" where the athlete exercises for 15-20 minutes in an activity such as biking or running where they increase their heart rate and break a sweat. If they do not experience any symptoms, this can be followed by a steady increase in exertion, followed by return to sport-specific activities that

do not put the athlete at risk for contact. Examples include dribbling a ball or shooting, stickwork or passing, or other agilities. This allows the athlete to return to the practice setting albeit in a limited role. Finally, the athlete can be progressed to practice activities with limited then full contact and finally full contact. How quickly one moves through this progression remains controversial.

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EXHIBIT 33

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July 31, 2015

BY E-MAIL

Ari J. Scharg, Esq.
Edelson PC
350 North LaSalle Street, Suite 1300
Chicago, Illinois 60654

File No. 049742-0012

Re: In re NCAA Student-Athlete Concussion Injury Litigation,
Case No. 1:13-cv-09116 (N.D. Ill.)

Dear Ari:

As you know, the NCAA and Class Counsel provided you with all of the discovery in Arrington, which amounted to 29,502 documents (176,849 pages) produced by the NCAA, together with 8,124 documents (28,485 pages) produced by 43 third-parties, for a total of over 200,000 pages of discovery materials. In addition, we provided you with all deposition transcripts and numerous other materials. See, e.g., May 22, 2015 Corresp. fr. A. Mellen to A. Scharg.

As we prepare our response to your July 15, 2015 submission, it has become clear that we need some information about Mr. Nichols and his claim. More specifically, we would appreciate it if you would provide us with Mr. Nichols' medical files at your earliest convenience, including but not limited to any "documented diagnosis" Mr. Nichols has received. See Nichols' Mem. (Dkt. #201) at 1 (proposing new class definition). We would also appreciate receiving any athletic training records Mr. Nichols can obtain with reasonable effort from San Diego State University to the extent such records pertain to treatment of Mr. Nichols. We would likewise appreciate it if you would identify each head injury, concussion or possible concussion Mr. Nichols sustained at any time in his life (i.e., before, during or after his time at San Diego State). Those materials and information can obviously be provided pursuant to the March 7, 2012 Agreed Confidentiality Order in Arrington (as were many of the materials we provided you), and we will, of course, agree to maintain those materials as "Confidential Information" under the March 7, 2012 Protective Order. See Agreed Confidentiality Order (Arrington Dkt. #57).

We would also appreciate a delineation of Mr. Nichols' claimed damages, broken down by category, with an indication of the amount Mr. Nichols is claiming for each category of damages. Lastly, we would appreciate confirmation from you that the source for documented concussions you are referring to in the proposed class definition in your July 15, 2015

Ari J. Scharg, Esq.
July 31, 2015
Page 2

LATHAM & WATKINS LLP

submission is NCAA's Injury Surveillance System, which we have previously made available to you. See Nichols' Mem. (Dkt. #201) at 1 n.3.

We trust and hope you will provide this information to us voluntarily and on an informal basis so as to not otherwise impede the preparation of our response to your July 15, 2015 submission.

Best regards.

Sincerely,

A handwritten signature in black ink, appearing to read 'Mark S. Mester', with a stylized, cursive script.

Mark S. Mester
of LATHAM & WATKINS LLP

cc: Steve W. Berman, Esq.
Elizabeth A. Fegan, Esq.
Joseph J. Siprut, Esq.

EXHIBIT 34

Table T-6.

U.S. District Courts—Trials and Trial Days for Each Place of Holding Court, by District,
During the 12-Month Period ending June 30, 2015

District	Number of Authorized Judgeships	Place of Holding Court (28 U.S.C. Ch. 5)	Total Trials	Total Trial Days	Judge Hours Spent on Other Proceedings
Total	677		20,396	23,331	121,120.4
DC	15.0		149	306	1,655.9
		Washington	149	306	1,655.9
ME	3.0		58	71	633.5
		Bangor	11	13	220.8
		Portland	47	57	412.7
		Caribou	-	-	-
		Augusta	-	-	-
		Waterville	-	-	-
MA	13.0		197	532	2,260.0
		Bourne	-	-	-
		Boston	166	451	1,811.2
		New Bedford	-	-	-
		Springfield	17	45	239.7
		Worcester	14	36	209.1
		Lawrence	-	-	-
		Pittsfield	-	-	-
		Ayer	-	-	-
		Hyannis	-	-	-
		Cambridge	-	-	-
		Pembroke	-	-	-
NH	3.0		71	47	423.6
		Concord	71	47	423.6
		Littleton	-	-	-
		Manchester	-	-	-
		Lancaster	-	-	-
RI	3.0		97	84	368.0
		Providence	97	84	368.0

District	Number of Authorized Judgeships	Place of Holding Court (28 U.S.C. Ch. 5)	Total Trials	Total Trial Days	Judge Hours Spent on Other Proceedings
PR	7.0	Warwick	-	-	-
		Newport	-	-	-
			154	276	1,830.6
		Mayaguez	-	-	-
		Ponce	-	-	-
		San Juan	154	276	1,830.6
		Aguadilla	-	-	-
		Santurce	-	-	-
			217	270	1,919.0
		West Hartford	-	-	-
CT	8.0	Norwalk	-	-	-
		Hartford	81	95	763.5
		New Haven	67	68	587.7
		Norwich	-	-	-
		Bridgeport	68	106	567.8
		Bridgeport	1	1	557.1
		Waterbury	-	-	-
		New London	-	-	-
		East Hartford	-	-	-
		Manchester	-	-	-
NY,N	5.0		295	166	516.8
		Canton	-	-	-
		Albany	187	94	169.8
		Albany	1	7	167.8
		Auburn	-	-	-
		Binghamton	9	12	28.7
		Malone	-	-	-
		Syracuse	53	33	181.1
		Utica	29	18	135.8
		Watertown	-	-	-
		Plattsburgh	5	0	.6
		Schenectady	11	1	.8
		Oneonta	-	-	-
		Troy	-	-	-
		Oxford	-	-	-

District	Number of Authorized Judgeships	Place of Holding Court (28 U.S.C. Ch. 5)	Total Trials	Total Trial Days	Judge Hours Spent on Other Proceedings
		Rome	-	-	-
NY,E	15.0		496	835	3,511.4
		Hauppauge	5	0	.0
		Brooklyn	369	643	2,590.1
		Central Islip	103	191	920.0
		Jamaica	-	-	-
		Bay Side	-	-	-
		Jackson Heights	-	-	-
		Long Island City	-	-	-
		Patchoque	-	-	-
		Westbury	-	-	-
		Hempstead	19	0	1.3
NY,S	28.0		529	1,609	7,156.4
		New York City	478	1,481	6,250.6
		Warwick	-	-	5.8
		Kingston	-	-	-
		Poughkeepsie	-	-	-
		Yonkers	-	-	-
		Mamaroneck	-	-	-
		White Plains	51	128	900.0
		Middletown-Walkill	-	-	-
		New Berg	-	-	-
NY,W	4.0		138	134	912.8
		Niagara Falls	-	-	-
		Buffalo	54	75	433.1
		Canandaigua	-	-	-
		Elmira	-	-	-
		Jamestown	-	-	-
		Lockport	-	-	-
		Rochester	84	59	479.7
		Williamsville	-	-	-
		Seneca Falls	-	-	-
		Olean	-	-	-
		Dunkirk	-	-	-
		Watkins Glen	-	-	-

District	Number of Authorized Judgeships	Place of Holding Court (28 U.S.C. Ch. 5)	Total Trials	Total Trial Days	Judge Hours Spent on Other Proceedings
VT	2.0	Batavia	-	-	-
		Mayville	-	-	-
			46	63	358.2
		Brattleboro	3	2	34.8
		Burlington	32	60	286.6
		Montpelier	-	-	1.5
		Newport	-	-	-
		Rutland	11	2	35.3
		Windsor	-	-	-
		Saint Johnsbury	-	-	-
		Saint Albans	-	-	-
		Bennington	-	-	-
DE	4.0		220	158	835.3
		Wilmington	220	158	835.3
		Dover	-	-	-
NJ	17.0		209	626	3,091.9
		Asbury Park	1	0	-
		Camden	71	172	897.6
		Newark	73	264	1,417.1
		Trenton	64	190	777.2
		Rutherford	-	-	-
		Jersey City	-	-	-
		New Brunswick	-	-	-
		Woodbury	-	-	-
		Morristown	-	-	-
		Atlantic City	-	-	-
		Newton	-	-	-
		Hackensack	-	-	-
		Marlton	-	-	-
		Paterson	-	-	-
		Brown Mills	-	-	-
		Fort Monmouth	-	-	-
PA,E	22.0		534	683	4,579.2
		Easton	2	0	-

District	Number of Authorized Judgeships	Place of Holding Court (28 U.S.C. Ch. 5)	Total Trials	Total Trial Days	Judge Hours Spent on Other Proceedings
PA,M	6.0	Philadelphia	471	646	3,808.3
		Media	1	0	-
		Reading	-	-	-
		Allentown	60	37	770.9
		Pottsville	-	-	-
		Lancaster	-	-	-
			196	196	1,019.8
		Mechanicsburg	-	-	-
		Harrisburg	75	62	317.1
		Lewisburg	18	43	66.0
		Scranton	76	63	481.8
		Williamsport	27	28	154.0
		Wilkes-Barre	-	-	.9
		Stroudsburg	-	-	-
		Chambersburg	-	-	-
		Pittston	-	-	-
		Hawley	-	-	-
		Hazleton	-	-	-
		Gettysburg	-	-	-
		Sayre	-	-	-
		Bellefonte	-	-	-
		Lemoyne	-	-	-
		York	-	-	-
		Huntington	-	-	-
			521	190	1,991.9
PA,W	10.0	St. Marys	-	-	-
		Erie	49	4	143.8
		Pittsburgh	458	162	1,684.8
		Clearfield	14	24	163.3
		Grove City	-	-	-
		Bradford	-	-	-
		Altoona	-	-	-
		Johnstown	-	-	-
		Somerset	-	-	-
		Uniontown	-	-	-
		Greensburg	-	-	-

District	Number of Authorized Judgeships	Place of Holding Court (28 U.S.C. Ch. 5)	Total Trials	Total Trial Days	Judge Hours Spent on Other Proceedings
		Meadville	-	-	-
		Mercer	-	-	-
		Clarion	-	-	-
		Franklin	-	-	-
		Warren	-	-	-
		Smethport	-	-	-
		Ridgway	-	-	-
VI	2.0		71	85	182.6
		Christiansted, St. Croix	28	57	98.3
		Frederiksted	-	-	-
		Charlotte Amalie, St. Thomas	43	28	84.3
		St. Croix	-	-	-
		St. Thomas	-	-	-
MD	10.0		301	419	2,141.4
		Hyatts./Greenbelt	-	-	-
		Baltimore	152	226	1,263.2
		Cumberland	-	-	-
		Denton	-	-	-
		Salisbury	-	-	-
		Hagerstown	-	-	-
		Bethesda	-	-	-
		Upper Mar boro	-	-	-
		Greenbelt	149	193	878.2
		District Heights	-	-	-
		Kensington	-	-	-
		Rockville	-	-	-
		Silver Spring	-	-	-
NC,E	4.0		367	127	590.8
		Rocky Mount	-	-	.0
		Clinton	-	-	-
		Elizabeth City	15	5	26.8
		Fayetteville	-	-	-
		New Bern	58	38	121.5
		Raleigh	160	33	309.7
		Washington	-	-	-

District	Number of Authorized Judgeships	Place of Holding Court (28 U.S.C. Ch. 5)	Total Trials	Total Trial Days	Judge Hours Spent on Other Proceedings
NC,M	4.0	Wilmington	100	41	86.3
		Wilson	-	-	-
		Greenville	34	11	46.5
		Dunn	-	-	-
		Goldsboro	-	-	-
		Jacksonville	-	-	-
		Trenton	-	-	-
		Williamston	-	-	-
			83	86	653.0
		Concord	-	-	-
		Durham	2	1	11.1
		Greensboro	49	40	469.1
		Rockingham	-	-	-
		Salisbury	-	-	-
		Wilkesboro	-	-	-
		Winston-Salem	32	46	165.3
		Raeford	-	-	4.7
		Asheboro	-	-	2.8
		Sanford	-	-	-
		A bemaile	-	-	-
		Biscoe	-	-	-
		Burlington	-	-	-
		Yadkinville	-	-	-
		Welcome	-	-	-
		Mayodan	-	-	-
		Laurinburg	-	-	-
NC,W	5.0		154	119	669.4
		Hendersonville	-	-	-
		Asheville	17	22	180.0
		Bryson City	4	0	.4
		Charlotte	91	88	396.3
		Shelby	-	-	-
		Statesville	42	8	92.7
		Rutherfordton	-	-	-
		Newton	-	-	-
		Gastonia	-	-	-

District	Number of Authorized Judgeships	Place of Holding Court (28 U.S.C. Ch. 5)	Total Trials	Total Trial Days	Judge Hours Spent on Other Proceedings
SC	10.0	Brevard	-	-	-
		Lenoir	-	-	-
		Lincolnton	-	-	-
		Morganton	-	-	-
		Marion	-	-	-
		Great Smoky Mts. National Park	-	-	-
		Wadesboro	-	-	-
		Wilkesboro	-	-	-
		North Wilkesboro	-	-	-
			389	194	1,291.2
		Rock Hill	-	-	5.2
		Aiken	-	-	14.2
		Charleston	162	82	395.4
		Columbia	149	87	369.4
		Florence	21	9	188.8
		Orangeburg	-	-	-
		Greenville	26	5	134.8
		Spartanburg	12	1	17.5
		Anderson/Greenwood	19	10	165.9
		Beaufort (Greenwood)	-	-	-
		Darlington	-	-	-
		Sumter	-	-	-
		Bennettsville	-	-	-
		Beaufort	-	-	-
		Walhalla	-	-	-
		Abbeville	-	-	-
		Easley	-	-	-
		Conway	-	-	-
VA,E	11.0		492	293	1,739.7
		Fredericksburg	-	-	-
		Alexandria	203	105	779.5
		Norfolk	168	105	504.3
		Richmond	96	57	403.0
		Newport News	25	26	52.9
		South Hill	-	-	-
		Petersburg	-	-	-

District	Number of Authorized Judgeships	Place of Holding Court (28 U.S.C. Ch. 5)	Total Trials	Total Trial Days	Judge Hours Spent on Other Proceedings
VA,W	4.0	Exmore	-	-	-
		Hampton	-	-	-
		Williamsburg	-	-	-
		Arlington	-	-	-
		Fairfax	-	-	-
		Mechanicsville	-	-	-
		Falls Church	-	-	-
			158	77	786.9
		Staunton	-	-	-
		Abingdon	40	14	142.9
		Big Stone Gap	7	11	4.9
		Charlottesville	26	9	71.8
		Danville	8	4	43.7
		Harrisonburg	32	18	163.7
		Lynchburg	9	1	42.9
		Roanoke	36	21	317.0
		Wytheville	-	-	-
		Rocky Mount	-	-	-
		Martinsville	-	-	-
		Wise	-	-	-
		Tazewell	-	-	-
		Christiansburg	-	-	-
		Galax	-	-	-
		Winchester	-	-	-
		Bristol	-	-	-
		Shenandoah	-	-	-
		Cumberland	-	-	-
		Big Island	-	-	-
		Chester	-	-	-
		Lexington	-	-	-
		Woodstock	-	-	-
WV,N	3.0		56	46	483.9
		Morgantown	-	-	-
		Clarksburg	18	16	264.9
		Elkins	8	2	26.6
		Martinsburg	13	7	68.9

District	Number of Authorized Judgeships	Place of Holding Court (28 U.S.C. Ch. 5)	Total Trials	Total Trial Days	Judge Hours Spent on Other Proceedings
WV,S	5.0	Parkersburg	-	-	-
		Wheeling	17	21	123.5
		Fairmont	-	-	-
		Charlestown	-	-	-
		Walton	-	-	-
		Keyser	-	-	-
			88	101	494.0
		Bluefield	1	0	25.0
		Charleston	54	65	252.6
		Huntington	22	29	144.6
		Lewisburg	-	-	-
		Beckley	10	7	71.8
		Parkersburg	1	0	-
		Welch	-	-	-
		Logan	-	-	-
		Fayetteville	-	-	-
			105	153	664.0
		Alexandria	15	43	84.0
		Lake Charles	18	5	38.5
LA,W	7.0	Monroe	19	6	36.0
		Opelousas	-	-	-
		Shreveport	26	38	213.3
		Lafayette	27	60	292.2
		Leesville	-	-	-
		Abbeville	-	-	-
			52	52	183.2
		Aberdeen	24	22	59.0
		Clarksdale	-	-	-
		Oxford	23	18	93.9
MS,N	3.0	Greenville	5	12	30.3
		Ackerman	-	-	-
		Kosciusko	-	-	-
		Houston	-	-	-
		Tupelo	-	-	-
		Corinth	-	-	-
			52	52	183.2

District	Number of Authorized Judgeships	Place of Holding Court (28 U.S.C. Ch. 5)	Total Trials	Total Trial Days	Judge Hours Spent on Other Proceedings
MS,S	6.0		144	228	882.9
		Biloxi	-	-	2.3
		Hattiesburg	35	33	110.8
		Jackson	64	130	568.4
		Meridian	1	0	-
		Vicksburg	-	-	-
		Gulfport	34	57	192.6
		Natchez	10	8	8.8
TX,N	12.0		254	347	1,077.7
		Garland	-	-	-
		Abilene	3	9	18.1
		Amarillo	11	10	63.6
		Dallas	127	270	705.3
		Fort Worth	74	33	224.3
		Lubbock	30	10	57.7
		San Angelo	1	4	-
		Wichita Falls	8	12	8.7
		Arlington	-	-	-
		Mineral Wells	-	-	-
		South Fort Worth	-	-	-
LA,E	12.0		111	239	1,145.5
		Military Court	-	-	-
		New Orleans	111	239	1,145.5
		Houma	-	-	-
LA,M	3.0		120	184	528.8
		Military Court	-	-	-
		Baton Rouge	120	184	528.8
TX,E	8.0		611	213	827.0
		Plano	-	-	-
		Beaumont	169	20	183.3
		Marshall	183	47	107.9
		Paris	-	-	7.0
		Sherman	167	93	324.8

District	Number of Authorized Judgeships	Place of Holding Court (28 U.S.C. Ch. 5)	Total Trials	Total Trial Days	Judge Hours Spent on Other Proceedings
TX,S	19.0	Texarkana	22	1	49.1
		Tyler	57	49	125.4
		Jefferson	-	-	-
		Denison	-	-	-
		Lufkin	13	3	29.5
			566	564	3,848.6
		Brownsville	30	34	334.7
		Corpus Christi	133	82	356.4
		Galveston	5	17	37.6
		Houston	168	330	1,650.4
		Laredo	98	52	530.8
		Victoria	18	10	93.3
		McAllen	114	39	845.4
		Edinburg	-	-	-
TX,W	13.0	Rio Grande City	-	-	-
			299	360	2,223.1
		Big Bend National Park	-	-	-
		Austin	65	65	340.9
		Del Rio	35	30	395.4
		El Paso	60	78	774.4
		Pecos	9	4	88.3
		San Antonio	73	153	422.2
		Waco	31	9	70.7
		Midland-Odessa	26	20	131.2
		Marfa	-	-	-
		Killeen	-	-	-
		Kerrville	-	-	-
		Eagle Pass	-	-	-
		Alpine	-	-	-
KY,E	5.5		97	125	794.1
		Ashland	5	9	36.2
		Catlettsburg	-	-	-
		Covington	14	18	192.7
		Frankfort	8	26	70.6
		Jackson	-	-	-

District	Number of Authorized Judgeships	Place of Holding Court (28 U.S.C. Ch. 5)	Total Trials	Total Trial Days	Judge Hours Spent on Other Proceedings
KY,W	4.5	Lexington	51	37	301.8
		London	14	27	150.8
		Pikeville	5	8	42.0
		Richmond	-	-	-
		Harlan	-	-	-
		Pineville	-	-	-
		Winchester	-	-	-
		Danville	-	-	-
			107	66	450.9
		Hopkinsville	-	-	-
		Bowling Green	17	25	57.7
		Cynthiana	-	-	-
		Louisville	62	21	247.8
		Owensboro	11	4	19.8
		Paducah	17	16	125.6
		Greensburg	-	-	-
		Lebanon	-	-	-
		Mammoth Cave	-	-	-
MI,E	15.0	Glasgow	-	-	-
		Nortonville	-	-	-
			306	531	3,684.6
		Bay City	18	29	136.8
		Detroit	222	411	2,977.1
		Port Huron	-	-	15.8
		Flint	44	44	214.0
		Ann Arbor	22	46	340.9
MI,W	4.0	Saginaw	-	-	-
			78	107	688.1
		Traverse City	-	-	-
		Grand Rapids	44	55	559.4
		Marquette	10	12	21.4
		Sault Ste. Marie	-	-	-
		Kalamazoo	21	33	107.3
		Lansing	3	5	-
		Muskegon	-	-	-

District	Number of Authorized Judgeships	Place of Holding Court (28 U.S.C. Ch. 5)	Total Trials	Total Trial Days	Judge Hours Spent on Other Proceedings
		Hart	-	-	-
		Whitehall	-	-	-
		Montaque	-	-	-
		Benton Harbor	-	-	-
		Escanaba	-	-	-
		Ironwood	-	-	-
		Mason	-	-	-
		Ontonagon	-	-	-
		Vicksburg	-	-	-
		Leland	-	-	-
		Charlevoix	-	-	-
OH,N	11.0		285	310	3,391.2
		Cleveland	167	167	1,692.7
		Lima	-	-	-
		Toledo	61	70	924.1
		Youngstown	9	17	306.8
		Akron	48	56	467.6
		Canton	-	-	-
		Delphos	-	-	-
		Mansfield	-	-	-
OH,S	8.0		603	133	1,971.1
		Cincinnati	114	57	830.5
		Columbus	342	47	619.2
		Dayton	147	29	521.4
		Steubenville	-	-	-
		Springfield	-	-	-
		Zanesville	-	-	-
		Portsmouth	-	-	-
		Chillicothe	-	-	-
TN,E	5.0		90	111	960.3
		Chattanooga	43	51	185.1
		Greeneville	16	16	330.4
		Knoxville	29	44	444.8
		Winchester	2	0	-
		Johnson City	-	-	-

District	Number of Authorized Judgeships	Place of Holding Court (28 U.S.C. Ch. 5)	Total Trials	Total Trial Days	Judge Hours Spent on Other Proceedings
TN,M	4.0	Newport	-	-	-
		Shelbyville	-	-	-
		Sweetwater	-	-	-
		Sevierville	-	-	-
			147	162	528.8
		Columbia	8	20	6.7
		Cookeville	4	4	19.1
		Nashville	135	138	503.0
		Clarksville	-	-	-
		McEwen	-	-	-
TN,W	5.0	Lawrenceburg	-	-	-
			409	162	1,212.7
		Jackson	70	20	168.1
		Memphis	339	142	1,044.6
		Dyersburg	-	-	-
		Selmer	-	-	-
		Savannah	-	-	-
IL,N	22.0		385	920	6,726.2
		Chicago	360	905	6,550.0
		Freeport	-	-	-
		Rockford	25	14	176.2
		Rochelle	-	-	-
		Ottawa	-	-	-
		Dixon	-	-	-
		Joliet	-	-	-
		Glen Ellyn	-	-	-
		Waukegan	-	-	-
		Wheaton	-	-	-
		Geneva	-	-	-
IL,C	4.0		239	150	882.0
		Kankakee	-	-	-
		Peoria	79	53	470.2
		Danville/Champaign-Urbana	48	29	88.8
		Springfield	94	57	182.0

District	Number of Authorized Judgeships	Place of Holding Court (28 U.S.C. Ch. 5)	Total Trials	Total Trial Days	Judge Hours Spent on Other Proceedings
IL,S	4.0	Rock Island	18	11	141.0
		Quincy	-	-	-
		Galesburg	-	-	-
		Bloomington	-	-	-
		Decatur	-	-	-
		Paris	-	-	-
		Champaign-Urbana	-	-	-
			157	164	724.5
		Chester	1	0	-
		Cairo	-	-	-
		East St. Louis	108	82	503.0
		Benton	48	81	221.2
		Alton	-	-	.3
		Carbondale	-	-	-
		Harrisburg	-	-	-
IN,N	5.0	Mount Carmel	-	-	-
		Lawrenceville	-	-	-
		Effingham	-	-	-
		Belleville	-	-	-
		Marion	-	-	-
			243	161	665.9
		Fort Wayne	68	55	152.4
		Hammond	148	90	306.7
		South Bend	27	16	205.7
		Lafayette	-	-	1.1
IN,S	5.0	Peru	-	-	-
		Gary	-	-	-
			161	121	643.6
		Indianapolis	128	81	509.7
		Terre Haute	13	13	35.8
		Evansville	20	27	90.5
		New Albany	-	-	7.6
		Richmond	-	-	-
		Linton	-	-	-
		Muncie	-	-	-

District	Number of Authorized Judgeships	Place of Holding Court (28 U.S.C. Ch. 5)	Total Trials	Total Trial Days	Judge Hours Spent on Other Proceedings
WI,E	5.0		100	91	731.2
		Fond du Lac	-	-	-
		Green Bay	15	15	174.0
		Milwaukee	85	76	557.2
		Oshkosh	-	-	-
		E khorn	-	-	-
		Appleton	-	-	-
		Racine	-	-	-
		Antigo	-	-	-
		Kenosha	-	-	-
		Sheboygan	-	-	-
WI,W	2.0		65	95	245.8
		Eau Claire	-	-	.0
		La Crosse	-	-	-
		Madison	65	95	245.8
		Superior	-	-	-
		Wausau	-	-	-
		Ashland	-	-	-
		Sparta	-	-	-
		Mosinee	-	-	-
		Tomah	-	-	-
AR,E	5.0		154	168	534.4
		Batesville	3	6	2.7
		Helena	5	7	-
		Jonesboro	6	8	7.4
		Little Rock	139	143	523.8
		Pine Bluff	1	4	.5
		Forrest City	-	-	-
		West Memphis	-	-	-
AR,W	3.0		46	101	587.1
		El Dorado	7	11	48.8
		Fort Smith	9	23	118.0
		Harrison	2	8	-
		Texarkana	8	19	60.0

District	Number of Authorized Judgeships	Place of Holding Court (28 U.S.C. Ch. 5)	Total Trials	Total Trial Days	Judge Hours Spent on Other Proceedings
IA,N	2.0	Fayetteville	16	34	333.8
		Hot Springs	4	7	26.5
		Camden	-	-	-
			279	82	349.8
		Cedar Rapids	167	42	205.0
		Dubuque	-	-	-
		Fort Dodge	-	-	-
		Mason City	-	-	-
		Sioux City	112	40	144.8
		Waterloo	-	-	-
IA,S	3.0		158	105	416.2
		Council Bluffs	14	14	37.6
		Creston	-	-	-
		Davenport	59	33	100.3
		Des Moines	85	58	278.3
		Keokuk	-	-	-
		Ottumwa	-	-	-
		Burlington	-	-	-
		Iowa City	-	-	-
MN	7.0		183	272	1,269.1
		Winona	-	-	-
		Mankato	-	-	-
		Saint Paul	49	120	577.5
		Minneapolis	121	119	650.7
		Duluth	8	20	32.1
		Fergus Falls	5	12	8.0
		Rochester	-	-	-
		St. Cloud	-	-	-
		International Falls	-	-	-
		Crookston	-	-	-
		Marshall	-	-	-
		Bemidji	-	-	.8
		Moorhead	-	-	-
MO,E	8.0		387	194	1,034.4

District	Number of Authorized Judgeships	Place of Holding Court (28 U.S.C. Ch. 5)	Total Trials	Total Trial Days	Judge Hours Spent on Other Proceedings
		Cape Girardeau	33	33	71.9
		Hannibal	5	10	9.1
		Rolla	-	-	-
		St. Louis	349	151	953.4
		Mexico	-	-	-
		Jackson	-	-	-
		Moberly	-	-	-
		Van Buren	-	-	-
MO,W	6.0		462	181	1,121.8
		Chillicothe	-	-	-
		Jefferson City	44	30	126.3
		Joplin	-	-	.6
		Kansas City	332	136	763.4
		St. Joseph	3	0	3.1
		Springfield	83	15	228.4
		Lebanon	-	-	-
		Ozark	-	-	-
NE	3.0		97	182	477.9
		Sidney	-	-	-
		Chadron	-	-	-
		Grand Island	-	-	-
		Hastings	-	-	-
		Lincoln	21	26	109.1
		McCook	-	-	-
		Norfolk	-	-	-
		North Platte	-	-	-
		Omaha	76	157	368.8
		Valentine	-	-	-
		Falls City	-	-	-
		O'Neill	-	-	-
		Pender	-	-	-
		Cozad	-	-	-
		Gering	-	-	-
ND	2.0		80	87	580.3
		Williston	-	-	-

District	Number of Authorized Judgeships	Place of Holding Court (28 U.S.C. Ch. 5)	Total Trials	Total Trial Days	Judge Hours Spent on Other Proceedings
SD	3.0	Bismarck	41	59	322.9
		Grand Forks	3	6	3.8
		Fargo	36	22	249.1
		Minot	-	-	4.5
		Jamestown	-	-	-
		Devils Lake	-	-	-
		Dickinson	-	-	-
		Pembina	-	-	-
		Fort Yates	-	-	-
		Belcourt	-	-	-
		Bottineau	-	-	-
		Rugby	-	-	-
		Minnewaukan	-	-	-
			168	150	576.2
		Aberdeen	18	6	41.4
AK	3.0	Deadwood	-	-	-
		Pierre	45	38	181.6
		Sioux Falls	41	43	169.6
		Rapid City	64	64	183.6
		Mobridge	-	-	-
		Winner	-	-	-
		Chamberlain	-	-	-
			39	98	340.2
AZ	13.0	Juneau	-	-	12.2
		Nome	-	-	-
		Anchorage	36	92	303.1
		Fairbanks	1	2	22.7
		Ketchikan	2	4	2.2
		Kodiak	-	-	-
			273	431	2,591.4
		Yuma	-	-	-
		Globe	-	-	.0
		Phoenix	137	279	1,538.6
		Prescott	7	0	-
		Tucson	129	153	1,052.8

District	Number of Authorized Judgeships	Place of Holding Court (28 U.S.C. Ch. 5)	Total Trials	Total Trial Days	Judge Hours Spent on Other Proceedings
		Florence	-	-	-
		Flagstaff	-	-	-
		Holbrook	-	-	-
		Kingman	-	-	-
		Nogales	-	-	-
		Grand Canyon	-	-	-
		Douglas	-	-	-
		Tuba City	-	-	-
		Safford	-	-	-
		Pinetop	-	-	-
		Sierra Vista	-	-	-
		Mesa	-	-	-
		Northside	-	-	-
		Glendale	-	-	-
		Southside	-	-	-
CA,N	14.0		380	503	2,729.1
		San Mateo	-	-	-
		Eureka	-	-	.0
		Fremont	-	-	-
		San Francisco	209	274	1,538.6
		Oakland	91	138	540.4
		San Jose	80	90	650.1
		Walnut Creek	-	-	-
		Monterey	-	-	-
		Salinas	-	-	-
		Santa Rosa	-	-	-
		Santa Cruz	-	-	-
		Capitola	-	-	-
CA,E	6.0		142	321	930.2
		Sequoia National Park	-	-	-
		Fresno	47	75	284.5
		Sacramento	95	246	645.6
		Redding	-	-	-
		Alturas	-	-	-
		Bakersfield	-	-	.1
		Lassen National Park	-	-	-

District	Number of Authorized Judgeships	Place of Holding Court (28 U.S.C. Ch. 5)	Total Trials	Total Trial Days	Judge Hours Spent on Other Proceedings
		Lone Pine	-	-	-
		Merced	-	-	-
		Modesto	-	-	-
		Stockton	-	-	-
		Susanville	-	-	-
		Yosemite National Park	-	-	-
		Yreka	-	-	-
		Bishop	-	-	-
		Ceres	-	-	-
		South Lake Tahoe	-	-	-
		Three Rivers	-	-	-
		Visalia	-	-	-
		Auburn	-	-	-
CA,C	28.0		563	885	3,644.9
		Twenty Nine Palms	-	-	-
		San Fernando Valley	1	0	-
		Los Angeles	418	597	2,650.4
		Lancaster	-	-	-
		Oxnard	-	-	-
		Riverside	49	95	247.5
		San Bernardino	-	-	-
		San Luis Obispo	-	-	-
		Santa Ana	95	192	747.0
		Santa Barbara	-	-	-
		Long Beach	-	-	-
		Santa Fe Springs	-	-	-
		Ventura	-	-	-
		Panorama City	-	-	-
		West Covina	-	-	-
		South Bay	-	-	-
		Laguna	-	-	-
		Pasadena	-	-	-
		Barstow	-	-	-
CA,S	13.0		254	460	2,614.4
		Mineral	-	-	.0
		El Centro	-	-	-

District	Number of Authorized Judgeships	Place of Holding Court (28 U.S.C. Ch. 5)	Total Trials	Total Trial Days	Judge Hours Spent on Other Proceedings
		San Diego	254	460	2,614.4
HI	4.0		177	184	631.6
		Kwajalein Missile Range	-	-	-
		Honolulu	177	184	631.6
		Hilo	-	-	-
		Wailuku	-	-	-
		Eleele	-	-	-
		Lihue	-	-	-
		Johnston Island	-	-	-
ID	2.0		42	50	407.7
		Boise	23	36	249.8
		Coeur d'Alene	10	10	67.5
		Moscow	-	-	.5
		Pocatello	9	4	89.9
		Idaho Falls	-	-	-
		Mountain Home	-	-	-
		Lewiston	-	-	-
		Twin Falls	-	-	-
		Caldwell	-	-	-
MT	3.0		154	127	760.4
		Lewistown	-	-	-
		Billings	49	34	207.6
		Butte	7	19	12.4
		Glasgow	-	-	-
		Great Falls	43	32	246.1
		Havre	-	-	-
		Helena	24	11	99.5
		Kalispell	-	-	-
		Livingston	-	-	-
		Missoula	31	30	194.8
		Miles City	-	-	-
		Browning	-	-	-
		Wolf Point	-	-	-
		L bby	-	-	-
		Hardin	-	-	-

District	Number of Authorized Judgeships	Place of Holding Court (28 U.S.C. Ch. 5)	Total Trials	Total Trial Days	Judge Hours Spent on Other Proceedings
NV	7.0	Hamilton	-	-	-
		Cut Bank	-	-	-
		Polson	-	-	-
		Augusta	-	-	-
		Bozeman	-	-	-
		Glacier National Park	-	-	-
			384	319	1,269.4
		Carson City	-	-	-
		Las Vegas	276	196	1,015.2
		Reno	108	123	254.2
		Elko	-	-	-
		Fallon	-	-	-
		Boulder City	-	-	-
OR	6.0	Ely	-	-	-
		Lovelock	-	-	-
			128	167	1,520.4
		Salem	-	-	-
		Medford	15	16	58.9
		Pendleton	2	5	1.8
		Portland	71	104	1,173.7
		Burns	-	-	-
		Klamath Falls	-	-	-
		Eugene	40	42	286.0
		Corvallis	-	-	-
		Crater Lake	-	-	-
		Vale	-	-	-
		Astoria	-	-	-
		Hood River	-	-	-
		Coquille	-	-	-
		North Bend	-	-	-
		Bend	-	-	-
		Baker	-	-	-
		Grants Pass	-	-	-
		Roseburg	-	-	-
		The Dalles	-	-	-
		La Grande	-	-	-

District	Number of Authorized Judgeships	Place of Holding Court (28 U.S.C. Ch. 5)	Total Trials	Total Trial Days	Judge Hours Spent on Other Proceedings
WA,E	4.0	Lincoln City	-	-	-
		Seaside	-	-	-
		Tillamook	-	-	-
		Albany	-	-	-
		Gold Beach	-	-	-
			88	158	845.0
		Ephrata	-	-	-
		Yakima	18	15	185.2
		Spokane	53	106	523.9
		Walla Walla	-	-	-
		Richland	17	37	135.9
		Kennewick	-	-	-
		Soap Lake	-	-	-
		Colville	-	-	-
		Wenatchee	-	-	-
		Pasco	-	-	-
		Moses Lake	-	-	-
			515	359	918.0
WA,W	7.0	Mount Rainier National Park	-	-	.0
		Bellingham	-	-	-
		Seattle	279	249	673.2
		Tacoma	236	110	244.8
		Port Townsend	-	-	-
		Vancouver	-	-	-
		Aberdeen	-	-	-
		Port Angeles	-	-	-
		Everett	-	-	-
		Olympic National Park	-	-	-
		Bremerton	-	-	-
			32	21	237.5
		Agana	32	21	237.5
GUAM	1.0	Supreme Court of Guam	-	-	-
			153	21	196.9
NMI	1.0		153	21	196.9
		Saipan	153	21	196.9

District	Number of Authorized Judgeships	Place of Holding Court (28 U.S.C. Ch. 5)	Total Trials	Total Trial Days	Judge Hours Spent on Other Proceedings
CO	7.0		136	321	1,136.2
		Mesa Verde National Park	-	-	-
		Denver	136	321	1,136.2
		Durango	-	-	-
		Grand Junction	-	-	-
		Montrose	-	-	-
		Pueblo	-	-	-
		Sterling	-	-	-
		Lamar	-	-	-
		Colorado Springs	-	-	-
		Rocky Mountain National Park	-	-	-
		Estes Park	-	-	-
		Monte Vista	-	-	-
		Cortez	-	-	-
		Boulder	-	-	-
		Fort Collins	-	-	-
		Steamboat Springs	-	-	-
		Southeastern	-	-	-
		Lakewood	-	-	-
KS	6.0		151	194	955.5
		Garden City	-	-	-
		Fort Scott	-	-	-
		Kansas City	85	82	387.4
		Leavenworth	-	-	-
		Salina	-	-	-
		Topeka	34	40	275.2
		Wichita	32	72	292.9
		Hutchinson	-	-	-
		Dodge City	-	-	-
		Lawrence	-	-	-
		Hays	-	-	-
		Junction City	-	-	-
		Colby	-	-	-
		Parsons	-	-	-
		Chanute	-	-	-
		Manhattan	-	-	-

District	Number of Authorized Judgeships	Place of Holding Court (28 U.S.C. Ch. 5)	Total Trials	Total Trial Days	Judge Hours Spent on Other Proceedings
NM	7.0		109	152	1,496.5
		Alamogordo	-	-	-
		Albuquerque	58	98	734.2
		Las Cruces	39	40	636.8
		Las Vegas	-	-	-
		Raton	-	-	-
		Roswell	-	-	-
		Santa Fe	12	14	125.5
		Silver City	-	-	-
		Gallup	-	-	-
		Hobbs	-	-	-
		Clovis	-	-	-
		Deming	-	-	-
		Carlsbad	-	-	-
		Tucumcari	-	-	-
		Clayton	-	-	-
		Farmington	-	-	-
OK,N	3.5		43	53	393.5
		Bartlesville	-	-	-
		Miami	-	-	-
		Pawhuska	-	-	-
		Tulsa	43	53	393.5
		Vinita	-	-	-
OK,E	1.5		27	43	123.0
		South McAlester	-	-	-
		Ada	-	-	-
		Ardmore	-	-	-
		Durant	-	-	-
		Hugo	-	-	-
		Muskogee	27	43	123.0
		Okmulgee	-	-	-
		Poteau	-	-	-
		Sulphur	-	-	-
OK,W	6.0		286	189	747.5

District	Number of Authorized Judgeships	Place of Holding Court (28 U.S.C. Ch. 5)	Total Trials	Total Trial Days	Judge Hours Spent on Other Proceedings
		Chickasha	-	-	-
		Enid	-	-	-
		Guthrie	-	-	-
		Lawton	-	-	-
		Mangum	-	-	-
		Oklahoma City	284	189	747.5
		Ponca City	-	-	-
		Woodward	-	-	-
		Shawnee	-	-	-
		Pauls Valley	2	0	-
		Clinton	-	-	-
		Altus	-	-	-
UT	5.0		67	181	1,306.5
		Ogden	-	-	-
		Salt Lake City	67	181	1,306.5
		Provo	-	-	-
		St. George	-	-	-
		Vernal	-	-	-
WY	3.0		42	111	449.2
		Jackson	-	-	-
		Casper	19	67	106.4
		Cheyenne	23	45	341.8
		Evanston	-	-	1.0
		Lander	-	-	-
		Sheridan	-	-	-
		Rawlins	-	-	-
		Pinedale	-	-	-
		Greybull	-	-	-
		Douglas	-	-	-
		Buffalo	-	-	-
		Wheatland	-	-	-
		Worland	-	-	-
		Torrington	-	-	-
		Green River	-	-	-
		Laramie	-	-	-
		Gillette	-	-	-

District	Number of Authorized Judgeships	Place of Holding Court (28 U.S.C. Ch. 5)	Total Trials	Total Trial Days	Judge Hours Spent on Other Proceedings
		Sundance	-	-	-
		Cody	-	-	-
		Lusk	-	-	-
		Thermopolis	-	-	-
		Yellowstone National Park	-	-	-
		Basin	-	-	-
		Kemmerer	-	-	-
		New Castle	-	-	-
AL,N	8.0		310	165	870.0
		Dora	-	-	.0
		Anniston	26	15	22.7
		Birmingham	174	108	626.4
		Florence	22	2	28.2
		Gadsden	15	6	9.6
		Huntsville	49	11	75.7
		Jasper	1	0	4.4
		Tuscaloosa	19	23	103.0
		Decatur	4	0	-
		Haleyville	-	-	-
		Talledega	-	-	-
AL,M	3.0		61	55	299.7
		Dothan	4	10	1.3
		Montgomery	56	44	298.4
		Opelika	1	1	-
		Prattville	-	-	-
AL,S	3.0		83	80	372.7
		Mobile	82	80	367.5
		Selma	1	0	5.2
		Grove Hill	-	-	-
FL,N	4.0		164	175	565.2
		Gainesville	17	19	48.8
		Marianna	-	-	-
		Pensacola	64	71	149.7
		Tallahassee	54	63	306.8

District	Number of Authorized Judgeships	Place of Holding Court (28 U.S.C. Ch. 5)	Total Trials	Total Trial Days	Judge Hours Spent on Other Proceedings
FL,M	15.0	Panama City	29	22	59.9
		Fort Walton Beach	-	-	-
			454	680	2,159.2
		Daytona Beach	-	-	-
		Fernandina	-	-	-
		Fort Myers	66	124	236.6
		Jacksonville	114	121	528.0
		Live Oak	-	-	-
		Ocala	19	35	55.2
		Orlando	99	142	433.5
		St. Petersburg	-	-	-
		Tampa	156	259	905.9
		Sarasota	-	-	-
		Titusville	-	-	-
		Cocoa	-	-	-
		Lakeland	-	-	-
		Naples	-	-	-
FL,S	18.0		513	1,257	3,650.9
		Fort Lauderdale	118	172	572.4
		Miami	286	727	2,393.4
		Fort Pierce	19	18	88.0
		Coral Gables	-	-	-
		Key West	14	31	53.7
		North Miami Beach	-	-	-
		Homestead	-	-	-
		West Palm Beach	76	309	543.4
		Naples	-	-	-
GA,N	11.0		254	330	1,317.4
		Atlanta	195	260	1,128.3
		Gainesville	23	24	84.9
		Newnan	11	15	21.9
		Rome	25	31	82.3
		Clarkesville	-	-	-
		Jasper	-	-	-

District	Number of Authorized Judgeships	Place of Holding Court (28 U.S.C. Ch. 5)	Total Trials	Total Trial Days	Judge Hours Spent on Other Proceedings
GA,M	4.0		139	126	469.3
		Albany	91	68	140.2
		Americus	-	-	-
		Athens	10	14	41.7
		Columbus	10	22	86.7
		Macon	23	16	147.3
		Thomasville	-	-	-
		Valdosta	5	7	53.4
		Vienna	-	-	-
GA,S	3.0		199	57	444.8
		Augusta	67	18	107.9
		Brunswick	32	5	77.0
		Dublin	12	4	29.0
		Savannah	53	25	150.7
		Waycross	15	1	29.0
		Statesboro	20	4	51.2

EXHIBIT 35

(FILED UNDER SEAL)

EXHIBIT 36

(FILED UNDER SEAL)

IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF ILLINOIS
EASTERN DIVISION

ADRIAN ARRINGTON, DEREK)
OWENS, ANGELA PALACIOS,)
KYLE SOLOMON, individually,)
and on behalf of all other)
similarly situated,)
)
Plaintiffs,)
) No. 11 CV 06356
vs.)
)
NATIONAL COLLEGIATE)
ATHLETIC ASSOCIATION,)
)
Defendant.)

The deposition of ADRIAN ARRINGTON, called
for examination, taken pursuant to the Federal Rules
of Civil Procedure of the United States District
Courts pertaining to the taking of depositions, taken
before Megan M. Cahill, CSR No. 84-004754, a
Certified Shorthand Reporter of the State of
Illinois, at 17 North State Street, Chicago,
Illinois, on March 14, 2013, at 10:00 a.m.

1 MR: AHLERING: Christian, can we take a
2 break?

3 MR. WORD: Yeah. I'm trying to take a break
4 every hour or so.

5 (Whereupon, a short break
6 was taken.)

7 BY MR. WORD:

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REDACTED CONFIDENTIAL

1 REDACTED CONFIDENTIAL

5 Q. But you do play your senior season?

6 A. You said who?

7 Q. You do play your senior season, don't
8 you?

9 A. Yeah. What I'm trying to figure out is
10 what's wrong with my head, you know what I'm saying?

11 REDACTED CONFIDENTIAL
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1 convincing her to say it was okay. They told me it
2 was okay to play football.

3 Q. How did that come about then, because the
4 doctor tells you you can't play.

5 A. Uh-huh.

6 Q. Something has to happen to change the
7 doctor's mind.

8 A. They just told me -- they took me to the
9 doctor and they said it was okay.

10 Q. Did the doctor perform any tests to
11 determine whether or not it was okay for you to play?

12 A. I think it was another CAT Scan or EEG or
13 something.

14 (Whereupon, Arrington
15 Deposition Exhibit No. 14
16 was marked for
17 identification.)

18 BY MR. WORD:

19 Q. Looking at the bottom half of this
20 document, is that an e-mail you sent to Barbara
21 Burke?

22 A. Yes, sir.

23 Q. Why did you send this e-mail to Barbara
24 Burke?

1 A. Because, like I said, with the seizure
2 situation, they was only reporting about seizures,
3 and I didn't understand anything about the seizure
4 thing, and I felt like I can play football if they
5 was just going to be talking about seizures.

6 Q. You wanted to keep playing?

7 A. Uh-huh.

8 Q. Are you trying to convince Barbara to
9 allow you to play?

10 A. Uh-huh.

11 Q. You say -- you write, I guess, in about
12 the sixth line down: "I'm not afraid to take a
13 chance on the game I love, and it's something I have
14 put my heart into my whole life."

15 A. Uh-huh.

16 Q. What did you mean by that?

17 A. What I mean by take a chance?

18 Q. Yeah. What chance are you willing to
19 take?

20 A. I'm not afraid to go after my goals and
21 the work I've put into football -- like I said, I've
22 been working hard to reach my goals and things,
23 aspects in life and the work I put in to get into
24 college and get my degree and stay on this field in

1 to do with my life because as a student athlete, I
2 have held up my end of what is expected of me, and I
3 just want to play."

4 A. Uh-huh.

5 Q. So what that means to me when I read that
6 is that you're saying, "I've put in my work. I've
7 done what I'm supposed to do. I get to decide if I
8 play."

9 A. Uh-huh.

10 Q. Is that what you're saying to Barbara?

11 A. Uh-huh.

12 Q. So you don't want the doctors telling you
13 you can't play? You want to make that decision?

14 A. Uh-huh.

15 Q. Right? Yes?

16 A. You said do I decide if I get to play?

17 Q. You're telling Barbara you think you have
18 the right to decide when you play or not?

19 A. Yeah.

20 Q. Before, when we were talking about why
21 you were suing the NCAA and what you wanted to have
22 happen, you're trying to get this lawsuit the exact
23 opposite though. You want the NCAA to tell people
24 when they can and cannot play, and athletes no longer

1 medical staff at EIU, by my coaching staff. I was
2 never told any of that.

3 Q. Then why do you think Dr. Bremer told you
4 not to play football?

5 A. Who?

6 Q. Why do you think Dr. Bremer told you not
7 to play football?

8 MS. VOLD: Speculation. Objection.

9 BY THE WITNESS:

10 A. He probably told me not to play to finish
11 this season out right here because he couldn't find
12 out what was going on with me that year. That's
13 probably why he told me that.

14 BY MR. WORD:

15 Q. Did Dr. Bremer tell you that there were
16 any risks if you continue to play football?

17 A. You talking about, like -- there's
18 assumed risk when you play football, but he ain't say
19 no risk in terms of no long-term damage of what was
20 going on with me right then and there.

21 Q. On the first page of that e-mail --

22 A. Uh-huh.

23 Q. The second-to-last line, it says, "I want
24 to play and if something does happen, I will quit on

1 have done anything to prevent that concussion or to
2 have limited your future football playing ability
3 following that concussion?

4 A. In 2007?

5 Q. After your very first concussion.

6 A. Should they have done something to
7 prevent it?

8 Q. Yeah.

9 A. Like I said, it's like -- I don't know if
10 they could have did something to prevent it because
11 concussions happen in football, but like I said, when
12 it affects like seizures and things like that happen,
13 that's when I feel they should start doing things
14 like better tackling techniques. That's the only
15 thing I can say to do to prevent concussions or
16 awareness of the coaches and things like that.

17 Q. But that first concussion, you don't know
18 that that -- Strike that.

19 Was your first concussion on
20 April 14th, 2007 due to poor tackling techniques?

21 A. Not that I know of.

22 Q. How about the concussion at the Eastern
23 Kentucky game on October 6, 2007? Was that due to
24 poor tackling techniques?



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EXHIBIT 37

(FILED UNDER SEAL)

1 A No.

2 Q Could you identify for me each football
3 coach you've had since you first started playing
4 football?

5 A Joey Jones, Jeff Terry, Jeff Holt, and
6 Clint Conque.

7 Q I recognize the last two. I'm not sure I
8 recognize the first two. Who is Joey Jones?

9 A Middle school, seventh grade, first coach.

10 Q And who is Jeff Terry?

11 A Junior high.

12 Q And Jeff Holt was Russellville High
13 School, correct?

14 A Yes, sir.

15 Q And Coach Conque, that was UCA; is that
16 right?

17 A Yes.

18 Q Do you believe a coach is responsible for
19 the well-being of his or her players?

20 MR. KUROWSKI: Objection, to the extent it
21 calls for a legal conclusion. You may go ahead.

22 A I believe there is some responsibility
23 there, yes.

24 Q (BY MR. MESTER) Have you considered suing
25 any of your coaches for the concussions you believe

1 Q Was he rendered unconscious, if you
2 recall?

3 A I cannot say for sure.

4 Q How do you know he suffered a concussion
5 at that time?

6 A Because he was not able to return to the
7 game and I took his spot on defense.

8 Q Anyone else?

9 A Not that I can say specifically, no.
10 Besides myself.

11 Q I believe you testified that you recall
12 specifically the one concussion in 2006 and there
13 was a possible other one; is that right?

14 A Yes.

15 Q Do you recall when that other one would
16 have been?

17 A The next to last game of the year in 2007.

18 Q So that would have been your senior year?

19 A Yes, sir, first round playoff game.

20 Q Can you describe the circumstances of
21 that, the play?

22 A I was running down the seam, the ball was
23 thrown in front of me, I jumped and extended to
24 catch it, and as I did the defensive back met me
25 with his helmet to the side of the face mask chin

1 area while I was attempting to catch the ball.

2 Q Was a penalty called?

3 A No.

4 Q As you described it, that sounded like
5 spearing? In your mind, was that a legal hit?

6 A No.

7 Q But to your recollection no penalty was
8 called; is that right?

9 A Correct.

10 Q What leads you to believe or what led you
11 to believe at the time that you had a concussion as
12 a result of that hit?

13 MR. KUROWSKI: Objection, vague.

14 A Would you restate the question, please?

15 Q (BY MR. MESTER) Sure. All I'm trying to
16 get at is you testified that you think you may have
17 suffered a concussion at that time, and I'd like to
18 know why you believe that to be the case?

19 A Unlike the other games, I do not recall
20 specifically the happenings of that game. I became
21 sick and vomited after when the game was done as
22 well as having a headache.

23 Q Did you report to either your coach or
24 anyone on the sidelines the fact that you thought
25 you may have suffered a concussion?

1 A I do not recall.

2 Q Did you receive any medical care or
3 treatment or diagnosis as a result of that event?

4 A No, I finished the game.

5 Q You didn't after the game seek any medical
6 care?

7 A After the game is when I began throwing
8 up.

9 Q After you finished throwing up did you
10 seek any medical care?

11 A I do not recall.

12 Q Looking back can you say for certain that
13 you never suffered any other concussion at any time
14 prior to enrolling at UCA other than the concussion
15 in 2006 and the possible concussion in 2007?

16 A Cannot say for sure.

17 Q Did you suffer any other injuries while
18 playing football in high school other than
19 concussions?

20 A Other than pulled muscles? Significant
21 injuries?

22 Q Yes.

23 A Not that I recall, no.

24 Q You're not trying to hold the NCAA liable
25 for the concussions you suffered while playing

1 the best of my knowledge.

2 Q Yes, absolutely.

3 A Then no.

4 Q Sir, throughout this deposition that's all
5 I'm looking for is your knowledge and
6 understanding.

7 A Right.

8 Q So by the time you started playing
9 football at UCA, you had already suffered at least
10 one and possibly two concussions; is that right?

11 A Yes.

12 Q So by the time you started playing
13 football at UCA, you were aware of the risks of
14 playing football and the possibility you might
15 suffer another concussion, correct?

16 A No.

17 Q You had already suffered two in high
18 school, so how weren't you aware of that
19 possibility when you started playing at UCA?

20 A I'm sorry?

21 Q What I'm trying to get at is you had
22 already suffered one and possibly two concussions
23 in high school?

24 A Uh-huh.

25 Q So by the time you started playing

1 Q Yes.

2 A Yes.

3 Q When you suffered the concussion?

4 A Yes.

5 Q So sitting here today the only concussion
6 that you recall ever suffering when you were not
7 wearing a helmet was the one in the spring or
8 summer of 2008; is that right?

9 A Obviously I can't say for certain, but
10 yes, that I recall.

11 Q Have you given any thought to suing the
12 manufacturers of the helmets you were wearing when
13 you suffered each of your concussions other than
14 that one in the spring or summer of 2008?

15 A No.

16 Q Do you know the names of the manufacturers
17 of the helmets you were wearing when you suffered
18 those concussions?

19 A Not specifically, no.

20 Q Do you recall wearing a Riddell helmet?

21 A I cannot say for sure.

22 Q Do you recall wearing a Riddell helmet at
23 UCA?

24 A I cannot say for sure.

25 Q If a class action were filed against

1 helmet manufacturers for injuries suffered while
2 playing football, would you be willing to
3 participate in that class action?

4 MR. KUROWSKI: Objection, vague.

5 A Would you please maybe more specifically
6 or restate that?

7 Q (BY MR. MESTER) Sure. If a class action
8 were filed against helmet manufacturers for
9 injuries suffered while playing football, would you
10 be willing to participate in that class action?

11 A If they're the ones solely responsible for
12 the injuries occurring, yes.

13 Q Were you ever advised or notified by the
14 manufacturers of the helmets you wore that you
15 could not rely upon those helmets to prevent
16 concussions?

17 A No.

18 Q Do you believe that the NCAA or its member
19 institutions should be held liable for concussions
20 caused by the defective helmets?

21 MR. KUROWSKI: Objection, calls for
22 speculation, legal conclusion, assumes facts not in
23 evidence.

24 A Okay, please restate that.

25 Q (BY MR. MESTER) Sure. Do you believe

1 that the NCAA or its member institutions should be
2 held liable for concussions caused by defective
3 helmets?

4 A To an extent, yes.

5 Q To what extent do you believe that's the
6 case?

7 A They're the governing body of college
8 athletics. Therefore, as a helmet or as any other
9 piece of equipment involved in athletics to an
10 extent I feel that they are responsible for those
11 specifications and the functionality of that piece
12 of equipment.

13 Q Is it your understanding that the NCAA
14 dictates the design of helmets?

15 A I do not know for sure.

16 Q If a helmet were not fitted properly by a
17 trainer or another member of a college staff, do
18 you think the NCAA should be responsible for that?

19 MR. KUROWSKI: Objection, assumes facts
20 not in evidence, calls for speculation and a legal
21 conclusion. You may answer.

22 A I cannot say for sure.

23 Q (BY MR. MESTER) Do you believe that
24 manufacturers of football helmets should bear any
25 responsibility whatsoever for the design of their

1 products?

2 MR. KUROWSKI: Same objection.

3 A To an extent as should anybody who offers
4 a product.

5 Q (BY MR. MESTER) So to the extent it were
6 established that there was a defect in the design
7 of a football helmet and that defect results in
8 concussions, you believe the manufacturer of that
9 helmet should bear some responsibility, correct?

10 MR. KUROWSKI: Same objection.

11 A Established by who?

12 Q (BY MR. MESTER) By a court. In other
13 words, if it were established that there was a
14 defect in a helmet manufactured by a helmet
15 manufacturer and that defect results in
16 concussions, you believe that manufacturer should
17 bear some responsibility, correct?

18 MR. KUROWSKI: Same objection.

19 A Not full responsibility.

20 Q (BY MR. MESTER) Sir, that wasn't my
21 question. Should that helmet manufacturer bear any
22 responsibility in your mind?

23 MR. KUROWSKI: Same objection.

24 A As an -- to an extent; it's their product.

25 Q (BY MR. MESTER) Did you wear a mouthguard

1 while playing football?

2 A Yes.

3 Q What did you understand the purpose of
4 wearing a mouthguard was?

5 A So you wouldn't bite your tongue off.

6 Q Did you also understand that the purpose
7 of wearing a mouthguard was to prevent concussions?

8 A No.

9 Q Did anyone ever indicate to you that was
10 one of the purposes of wearing a mouthguard?

11 A No.

12 Q Were you wearing a mouthguard when you
13 suffered each of the concussions you've testified
14 to today?

15 A While I was wearing a helmet, yes.

16 Q So every one except the one in the spring
17 or summer of 2008, correct?

18 A Yes. I had a helmet on, I had a
19 mouthpiece.

20 Q Have you given any thought to filing suit
21 against the manufacturers of those mouthguards?

22 A No, I never bit my tongue.

23 Q If a college athlete suffered a concussion
24 because of a defective mouthguard, do you think
25 that the NCAA or its member institutions should be

1 held liable?

2 MR. KUROWSKI: Objection, calls for
3 speculation, legal conclusion. You can go ahead.

4 A The same as the manufacturer of a helmet;
5 it's a product that serves a specific purpose.

6 Q (BY MR. MESTER) I believe you testified
7 that you did not receive any medical care after the
8 possible concussion you suffered in 2007, correct?

9 A The possible concussion?

10 Q Well, the one in your senior year when you
11 were running the seam, as you said. You did not go
12 to a doctor after that one.

13 A As far as I recall, no.

14 Q Did you receive any medical care or
15 treatment after the concussion in 2006?

16 A Yes.

17 Q Can you describe for me the circumstances
18 of that concussion?

19 A I was briefly knocked out on the field
20 during a play. I was taken off, evaluated by a
21 team trainer, helmet was taken away, and I was not
22 allowed to return to play.

23 Q Who made the decision to not allow you to
24 return play?

25 A I cannot say for sure. The team doctor

1 in 2006?

2 A Sitting here now?

3 Q Yes.

4 A No.

5 Q Have you given any thought to bringing a
6 legal claim against the persons who made the
7 decision to allow you to return play in 2006?

8 A No.

9 Q Why not?

10 A The same as why I wouldn't the coach or
11 university. They are not the ultimate governing
12 body of that.

13 Q Well, by that I mean you're referring to
14 your high school. So your high school is part of
15 some conference, correct?

16 A Yes.

17 Q And there was some governing body for all
18 Arkansas high schools, correct?

19 A I assume, do not know for sure.

20 Q Have you given any thought to filing suit
21 against the governing body of Arkansas high school
22 sports?

23 A No.

24 Q Why not?

25 A I knew that was coming.

1 Q There's a pattern.

2 A To my knowledge I don't know of a single
3 institution that controls high school sports. I
4 assume it's nationwide.

5 Q But you are aware of an institution that
6 controls high school sports statewide, correct?

7 A I wouldn't know specifically which
8 institution that would be.

9 Q Your testimony is that as of today you
10 haven't given any thought to filing a parallel
11 lawsuit against the state institution that was
12 responsible for high school sports at the time you
13 suffered the concussion in 2006; is that right?

14 MR. KUROWSKI: Objection, vague.

15 A No.

16 Q (BY MR. MESTER) Was the severity of the
17 concussion that you suffered in 2006, was that
18 determined at the time?

19 A No, not to my knowledge. If so, I don't
20 recall if it was spoken to me.

21 Q Out of high school you decided to attend
22 Central Arkansas, correct, UCA?

23 A Yes.

24 Q What other schools besides UCA did you
25 consider?

1 A Yes.

2 Q Did you field punts in junior high school?

3 A Yes.

4 Q As a receiver of punts, you understood you
5 had the option of signaling for a fair catch,
6 correct?

7 A Yes.

8 Q What circumstances did you consider it
9 appropriate to signal for a fair catch?

10 A In high school?

11 Q Yes.

12 A Pretty much every time. Based on our
13 scheme, we were ball control, so we were going to
14 block the punt, not necessarily to set up a return.

15 Q In deciding whether or not to signal for a
16 fair catch you understood that if you didn't signal
17 for a fair catch that you could take a hit,
18 correct?

19 A Yes.

20 Q At anytime during your football career was
21 a penalty ever called on you for spearing?

22 A On me?

23 Q Yes.

24 A No.

25 Q Was a penalty ever called you for illegal

1 that you had lost consciousness after that
2 concussion, the September 2006 concussion?

3 A I do not know.

4 Q Do you recall providing UCA with any
5 medical records regarding the concussions you
6 suffered in high school?

7 A I don't know.

8 Q There's also a reference here in your
9 response to interrogatory number one to the hit
10 during voluntary practice in June 2008. Do you see
11 that?

12 A Uh-huh.

13 Q That was by Jamie Hill, correct?

14 A I believe that's correct.

15 Q Did you receive any medical evaluation or
16 treatment in connection with the hit you received
17 from Mr. Hill in the voluntary practice in the
18 spring of 2008?

19 A No.

20 Q Did any medical professional diagnose that
21 you had suffered a concussion as a result of that
22 hit?

23 MR. KUROWSKI: Objection, vague.

24 A In retrospect possibly, but there was no
25 one there.

1 Q (BY MR. MESTER) You were not wearing pads
2 or a helmet at the time of the hit by Mr. Hill; is
3 that right?

4 A That's right.

5 Q So this was a non-contact drill?

6 A Per se.

7 Q Jamie Hill was not supposed to be making
8 contact with you, correct?

9 A As far as tackling, no.

10 Q He certainly wasn't supposed to be hitting
11 you in the back of your head hard enough to cause a
12 concussion, correct?

13 MR. KUROWSKI: Objection, vague.

14 A There was no list of rules and
15 regulations. I mean, we got in fights at practice
16 too.

17 Q (BY MR. MESTER) You weren't supposed to
18 do that either, correct?

19 A Says who?

20 Q For instance, if you had brought a gun to
21 practice and pulled the gun on someone and shot
22 them, would that have been okay?

23 A That's hypothetical, and I guess that's a
24 legal law.

25 Q Did you believe that the hit Mr. Hill put

1 on you that caused or allegedly caused this
2 concussion was proper and appropriate?

3 A No.

4 Q Did you do anything about it? Did you
5 report him to your coaches?

6 A I didn't know what to do. It was one of
7 my first practices as a freshman.

8 Q Well, if Mr. Hill had pulled a gun on you,
9 would you have reported it to your coaches or to
10 the police?

11 A Once again, that's against the law.

12 Q I'm asking the question.

13 A I don't know.

14 Q Did it seem like an illegal hit to you?

15 A I don't know. Last I recall I didn't know
16 the NCAA had laws against guns.

17 Q I don't know that it does. Maybe just a
18 piece of common sense.

19 Have you given any thought to making a
20 claim against Mr. Hill?

21 A No.

22 Q Why not?

23 A Poor judgment on his part.

24 Q That would be reason to make a claim,
25 wouldn't it?

1 last summer.

2 Q I thought we had a transcript to that
3 effect. I'll ask you about that in a minute.

4 A No, sir. It might be inconclusive. I've
5 not finished a full semester since leaving UCA.

6 Q Were you in class in summer school last
7 summer?

8 A No, I believe I was last spring. That was
9 the last time I was enrolled at Arkansas Tech.

10 Q What grades did you get?

11 A I believe I was in there for a month and a
12 half, and I cannot recall. I do believe I made a C
13 on my first test or something like that; maybe
14 homework grades, completion grades might have
15 reflected A's. I can't say for sure.

16 Q Right under the heading something to
17 prove, the article indicates that you "did not
18 believe in fair catches." Is that what you told
19 Mr. Vecsey in substance?

20 A To an extent.

21 Q What did you mean by that?

22 A I meant that I had something to prove.

23 Q What did you have to prove?

24 A Just with the type of person I am, my
25 competitive nature, I wanted to be a receiver, and

1 I didn't feel like I was getting a fair shot at it.
2 Therefore, every opportunity I had on the field I
3 was going to prove that I deserved to be on the
4 field.

5 So therefore, if -- I mean, now I did fair
6 catch some, and that can be found in any film or
7 anything else, but to an extent if it was going to
8 be close or this or that, my first instinct was to
9 catch it and return it, as I believe any punt
10 returner would be, any halfway decent punt returner
11 worth his salt.

12 Q You knew that by refusing to signal for a
13 fair catch you were increasing the risk of injury,
14 correct?

15 MR. KUROWSKI: Objection, calls for
16 speculation.

17 Q (BY MR. MESTER) You're more likely to be
18 injured if you don't signal for a fair catch than
19 if you do, correct?

20 A I can't say that accurately because the
21 first punt return I ever did I got hit before the
22 ball even got there, so you can't speculate that.

23 Q Did you signal for a fair catch?

24 A Actually it was at Eastern Illinois, and I
25 had signaled for a fair catch and he hit me before

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17 Q I'm handing you, Mr. Owens, what's been
18 marked as Exhibit 14. My first question is, are
19 those your signatures at the top and bottom of the
20 page?

21 (Whereupon Exhibit 14 was marked for
22 identification)

23 A They appear to be.

24 Q Is there any reason to doubt that you
25 signed these documents on or about August 5, 2008?

1 A No, that would be roughly the same time
2 the entire packet of papers that we were presented
3 was signed.

4 Q And that was the very beginning of your
5 freshman year at UCA, correct?

6 A Yes.

7 Q Could you read into the record, please,
8 the first sentence under the second document?

9 MR. KUROWSKI: There's only one document.

10 Q (BY MR. MESTER) Two separate documents
11 are put on one page. The bottom there under
12 "Helmet Liability Release."

13 A "I, the undersigned, fully understand that
14 there are risks involved in my participation on the
15 University of Central Arkansas football team."

16 Q And you signed this document, you believe,
17 on or about August 5, 2008, correct?

18 A Strong possibility that I've never even
19 read it.

20 Q Are you in the habit of signing documents
21 you don't read?

22 A When they're presented in a manner that
23 they were, yes.

24 Q Could you read the next sentence into the
25 record, please?

1 A "Furthermore, I verify that I have been
2 warned concerning the risks of head and/or neck and
3 spinal cord injury that may occur as a result of
4 physical contact while wearing a football helmet
5 during football practice or games."

6 I can also attest that this was the first
7 day, the first evening, that I was on campus before
8 we had even started practice and that that was not
9 the case.

10 Q So you verified here with a signed
11 statement that you had been warned, and what you're
12 testifying today is that you weren't?

13 A Sir, I was a freshman at a university and
14 there was an athletic director or assistant
15 athletic director standing in front of a room of
16 the entire of team with a stack of papers they just
17 passed out, holding up a paper saying first blank
18 print your name, circle do, sign at the bottom,
19 date. Next blank sign your name. For at least an
20 hour that's exactly what we went through. I can
21 attest to that.

22 Q So when you say here that you verify you
23 really weren't verifying? I'm trying to figure out
24 which is true.

25 A Yeah, I suppose not. It should be deemed

1 illegitimate, but I can also attest that, yeah,
2 there was not warned concerning risk because that
3 was my first day on campus. The first evening, we
4 hadn't even started practice yet.

5 Q Well, no one suggested you had started
6 practice. It says that "I have been warned
7 concerning the risk of head and/or neck and spinal
8 cord injury that may occur as result of physical
9 contact while wearing a football helmet during
10 football practice or games." And you signed this
11 document on or about August 5, 2008, but if I
12 understand your testimony today you're now saying
13 in fact you were not warned?

14 A Right. And I told you the circumstances
15 surrounding the signing of this document along with
16 probably dozens more of similar. I honestly can't
17 even tell you what they were. And I can also tell
18 you that as my testimony that it was -- that was
19 not the case.

20 Q But you don't deny you signed it?

21 A I don't believe so.

22 Q You don't believe you signed it, or you
23 don't --

24 A I do not believe I deny it. It appears to
25 be my signature. The time frame appears to be

1 correct, but what I am telling you is that I signed
2 a lot of documents that were presented in a way or
3 manner which I just said.

4 Q Did anyone tell you shouldn't read these
5 documents before signing them?

6 A No, not specifically that I can recall.
7 You can ask if there was time given for us to read
8 them, though, because that was not the case.

9 Q We're going to ask a few other people
10 about that --

11 A Okay.

12 Q -- see if they have a different view than
13 yours.

14 A Make sure they're athletes too.

15 Q We're going to ask a lot of people. I'm
16 not quite sure what to make of all of this.

17 MR. KUROWSKI: Is this happening before
18 Friday?

19 MR. MESTER: It may or may not.

20 Q (BY MR. MESTER) Did you sign any other
21 documents at UCA that were false or misleading?

22 MR. KUROWSKI: Objection, calls for
23 speculation, assumes facts not in evidence. You
24 may go ahead.

25 A I do not recall. I just told you I don't

EXHIBIT 38

(FILED UNDER SEAL)

1 A Because it was a huge situation when I
2 decided to quit and because my reasoning was that
3 it just wasn't safe for me to play anymore, but I
4 don't think he told the other players that because
5 they treated me differently.

6 Q I'm not sure I understand. What was the
7 huge situation that led you to quit and that your
8 coach did this to you because of?

9 A I got injured on a Tuesday with a
10 concussion. I couldn't see out of my left eye
11 because it was bruised and swollen, and not even a
12 week later he told me -- was trying to get me to go
13 run, and I told him that I couldn't.

14 He was mad and told -- or was saying that
15 I disrespected him and that I was basically not
16 being a team player and told me that I can plan on
17 sitting out for a long time. I just decided after
18 that that I didn't want to play.

19 Q Did he say how you had disrespected him?

20 A There was a recruit there that day, and he
21 told me to go run and I told him that I couldn't
22 and that was how I disrespected him.

23 Q Because you refused to run when he told
24 you to, he said you wouldn't be able to play for a
25 long period of time?

1 A Because my mom called him and told him
2 that I wasn't able to do anything.

3 Q Would you have continued to play soccer at
4 OBU even if he had not said that?

5 A I honestly don't know. I know because he
6 tried to force me to go back before I was ready
7 that was a factor in it, but I don't if I would
8 have continued to play.

9 Q Is that a factor that caused you to stop
10 playing soccer at OBU or a factor that caused you
11 to stop playing soccer altogether?

12 A OBU and altogether.

13 Q So your coach's statements to you caused
14 you to give up the game of soccer?

15 A Not just his statements. It wasn't his
16 statements. It was the fact that he thought after
17 four days with a concussion I could go back and
18 play when I knew for a fact that it was a mandatory
19 two weeks before I was allowed to do anything.

20 I just felt as though I wasn't ready, so
21 that caused me to quit soccer at OBU, and I decided
22 after that that I just didn't want to put myself
23 through, like, the pain of soccer really.

24 Q You said that it was mandatory that you
25 sat out for two weeks. Where does that requirement

1 MR. WORD: You want to take a short break?

2 THE WITNESS: (Witness nods head).

3 MR. WORD: Let's do that.

4 (BREAK FROM 9:20 TO 9:24)

5 Q (BY MR. WORD) How did your coach
6 embarrass you?

7 A He -- we were -- I was with a group of
8 girls as they were stretching, and he told me that
9 it was time that I go put my running shoes on to go
10 run. And I thought he was joking, so I played it
11 as a joke and said, like I can't go run.

12 He was like, no, I'm serious; you need to
13 go run. And then I guess my -- like his tone
14 changed with me and I was like, I really can't go
15 run. And he pulled me to the side and told me to
16 stop embarrassing him because there was a recruit
17 there and it was in front of the recruit's parents.
18 And I was like, I'm sorry I didn't mean to
19 embarrass you, but I was just letting you know that
20 this is something I can't do.

21 And he told me to go ask the trainers if I
22 could go run, so the trainers -- the trainer that I
23 had I think was a student trainer, so she called
24 the head trainer or the trainer back at school and
25 asked, and that's who said that I could run unless

1 my head started hurting.

2 Q Do you recall the name of the student
3 trainer you spoke to?

4 A No.

5 Q Was she at the field?

6 A Yes.

7 Q So you spoke to her directly?

8 A Yes.

9 Q Was the head trainer at the field?

10 A No.

11 Q Do you recall her name?

12 A No.

13 Q How did the student trainer contact the
14 head trainer?

15 A Cell phone.

16 Q Did you speak to the head trainer on that
17 call?

18 A No.

19 Q So the student trainer told you what the
20 head trainer had said?

21 A Yes.

22 Q And after the head trainer said that you
23 could run and only stop if it caused problems, you
24 went and got your shoes then?

25 A Yes.

1 you not run?

2 MS. VOLD: Objection, speculation.

3 A I don't know.

4 Q (BY MR. WORD) Did you participate in any
5 practices or games for OBU after that day when
6 Coach Denning forced you to run and you couldn't
7 run?

8 A No.

9 Q So you'd played soccer since you were four
10 years old, right?

11 A Yes.

12 Q Have you played any other sports?

13 A Yes.

14 Q What other sports have you played?

15 A Softball, cheerleading, track, cross-
16 country. I think that's about it.

17 Q Did you play those sports in high school?

18 A Cross-country and track.

19 Q What about the other sports, where did you
20 play those? Cheerleading?

21 A Middle school.

22 Q And softball?

23 A Outside of school.

24 Q When did you last play softball?

25 A Middle school.

1 Q Did you play any of those sports in
2 college?

3 A No.

4 Q How many soccer games have you played in
5 in your life?

6 MS. VOLD: Speculation. You can answer if
7 you know.

8 A I have no idea.

9 Q (BY MR. WORD) Do you know how many
10 practices you participated in?

11 A No.

12 Q Do you know how many times you've headed
13 the ball?

14 A No.

15 Q Do you know how many times you've been hit
16 on the head in soccer games or practices?

17 A No.

18 Q Did you wear headgear your entire time of
19 playing soccer at OBU?

20 A Yes.

21 Q Did you wear that in every practice?

22 A Yes.

23 Q Did you wear the head gear in every game?

24 A Yes.

25 Q Did you wear the head gear prior -- strike

1 that.

2 Did you wear the head gear in soccer
3 practices or games prior to attending college?

4 A Yes.

5 Q Do you recall approximately the time at
6 which you started wearing the head gear?

7 A 2008, my junior year.

8 Q Junior in high school?

9 A Yes.

10 Q Why did you start wearing head gear in
11 2008?

12 A I got my first serious concussion.

13 Q Why was it your first serious concussion?
14 I'm focusing on the word "serious." Why would you
15 describe that concussion as serious?

16 A It was the first time I got hit and
17 couldn't remember how it happened.

18 Q Has someone since told you how it
19 happened?

20 A Yes.

21 Q How did it happen?

22 A I believe -- I only remember one, and I'm
23 not sure if it was the first one or the second one.
24 I jumped up to head the ball, and a girl's elbow
25 hit me in the side and then I hit the ground.

1 in soccer?

2 A Midfield and forward.

3 Q When was your first concussion suffered
4 playing soccer?

5 A 2008.

6 Q Do you recall when in 2008?

7 A No.

8 Q Can you describe for me that concussion,
9 how it occurred?

10 A I don't remember.

11 Q Do you recall what you did after you
12 received the concussion?

13 A I went to -- I didn't finish the game, and
14 then I went to the doctor the next day.

15 Q Why did you go to the doctor the next day?

16 A Because my mom wanted to make sure I was
17 okay.

18 Q Is your mom a doctor?

19 A No.

20 Q Does she work at an infectious disease
21 type of facility?

22 A I don't know.

23 Q Does she work at the North Texas
24 Infectious Disease Consultants, or work with them?

25 A I'm not sure if she still does.

1 Q Did she work for them at one point in
2 time?

3 A Yeah.

4 Q Do you know what she did for them?

5 A No.

6 Q But she's not a medical doctor?

7 A No.

8 Q So your mom took you to the doctor after
9 you suffered the concussion?

10 A Yes.

11 Q What happened then?

12 A Basically because of my symptoms I was
13 just not to play for two weeks and to come back for
14 a checkup.

15 Q What were your symptoms?

16 A Headaches, my neck was sore, my back was
17 sore.

18 Q Is this the concussion that you received
19 when the elbow hit you in the temple?

20 A I'm not sure.

21 Q When was your next concussion suffered
22 while playing soccer?

23 A I'm not sure.

24 Q Go back to the 2008 concussion. Were you
25 playing on a school team, a club team, or just for

1 fun when that injury occurred?

2 A Club team.

3 Q Do you recall the name of that club?

4 A Polaris.

5 Q P-o-l-a-r-i-s?

6 A Yes.

7 Q Was that in a practice or a game?

8 A Game.

9 Q You said you didn't finish the game after
10 you suffered the concussion?

11 A No.

12 Q Did you have any other concussions in
13 2008?

14 A I don't think so.

15 Q How about 2009?

16 A I believe I had my second one in 2009.

17 Q Can you describe for me the circumstances
18 of that concussion?

19 A I don't know.

20 Q Was this the concussion where the player
21 hit you in the temple with the elbow?

22 A I think so, but I don't know.

23 Q Do you recall if that concussion occurred
24 in a game or a practice?

25 A Game.

1 Q Did you finish the game?

2 A No.

3 Q Did you receive medical treatment after
4 the game?

5 A Yes.

6 Q From whom did you receive medical
7 treatment?

8 A My doctor.

9 Q Dr. Archer?

10 A Yes.

11 Q Why did you go to the doctor after the
12 game?

13 A Because my mom wanted to make sure I was
14 okay.

15 Q Were you having symptoms of concussion?

16 A Yes.

17 Q What were those symptoms?

18 A I couldn't remember exactly how everything
19 happened, and then again the headaches and sore
20 neck and sore back.

21 Q Could you again not remember the
22 circumstances of the concussion, how you got it?

23 A No.

24 Q That was a bad question. Could you
25 remember how you got the concussion?

1 A No.

2 Q Did you lose consciousness?

3 A Briefly.

4 Q Briefly. Is that a couple of seconds?
5 minutes?

6 A Probably seconds.

7 Q Were you able to walk off the field?

8 A With help.

9 Q So your mom took you to the doctor?

10 A Yes.

11 Q Did she take you the same day?

12 A No, it was on the weekend, so she waited.

13 Q The game was on a weekend?

14 A Yes.

15 Q So she waited until Monday or whatever,
16 when the doctor's office was open?

17 A Yes.

18 Q Any other concussions in 2009?

19 A No.

20 Q When was your next concussion?

21 A At OBU.

22 Q That's the one we talked about before?

23 A Yes.

24 Q Could you describe for me the
25 circumstances of that concussion?

1 A I don't understand.

2 Q How did you receive that concussion?

3 A I was in a drill where one player was
4 throwing the ball in the air to four other players,
5 and those four players had to jump and head the
6 ball. So we were all going for it, and if you
7 didn't jump or if you didn't go for it you had to
8 run, so everyone was kind of being competitive.
9 And I jumped and headed the ball forward, and a
10 girl in front of me threw her head back and hit me
11 right here.

12 Q On your eyebrow?

13 A On my eyebrow. I immediately turned and
14 grabbed my face, my nose, and then as soon as I did
15 that my eyebrow was swollen pretty badly.

16 Q Let me go back to the 2009 concussion
17 because I forgot to ask you a couple of questions
18 there. You went to go see Dr. Archer?

19 A Yes.

20 Q What did Dr. Archer tell you about the
21 concussion?

22 A Just not to play for two weeks and to come
23 back and see her.

24 Q Anything else?

25 A I don't remember.

1 Q Did you tell Dr. Archer that you had
2 previously had a concussion in 2008?

3 A Yes.

4 Q What did she say about the fact you now
5 suffered two concussions playing soccer?

6 A I don't remember.

7 Q Did she give you any warnings about
8 multiple concussions?

9 A I don't remember.

10 Q Did she in any way suggest that you were
11 at risk by continuing to play soccer?

12 A I believe so, but...

13 Q What do you think she might have said to
14 you?

15 A I know she told me at one point, I'm not
16 sure if it was at the same time, but that it was
17 advisable to not play but she told me at three.

18 Q I'm sorry, she told you --

19 A That it was advisable -- I guess three was
20 her limit.

21 Q She told you that after suffering three
22 concussions you should no longer play soccer?

23 A Yes.

24 Q She told you this after you had suffered
25 two concussions?

1 A Yes.

2 Q Were you wearing head gear at the time of
3 the second concussion?

4 A Yes.

5 Q Do you know what these are?

6 (Whereupon Exhibit 1 was marked for
7 identification)

8 A Yes.

9 Q What are they?

10 A Photos of me playing soccer.

11 Q Do you know who took these pictures?

12 A Yes.

13 Q Who took these pictures?

14 A Wesley Kluck.

15 Q Who is Wesley Kluck?

16 A He's the doctor at OBU.

17 Q Do you know why Wesley Kluck was taking
18 these pictures?

19 A He does for all sports at OBU.

20 Q Is he the team photographer, or is he
21 something else?

22 A He's the doctor on campus, but he's also
23 the photographer for every event.

24 Q You see at the bottom these little
25 numbers?

1 wearing head gear with your mother?

2 A No.

3 Q Going back to the concussion you suffered
4 at OBU, do you recall when that concussion
5 occurred?

6 A Yes.

7 Q When was it?

8 A September 13, 2011.

9 Q What did you do after you suffered that
10 concussion?

11 A Sat out practice.

12 Q This concussion occurred during a drill?

13 A Yes.

14 Q Did you complete the drill?

15 A No.

16 Q Did you participate in the practice in any
17 way or any point after suffering the concussion on
18 that day?

19 A No.

20 Q What happened after you left the field
21 after suffering the concussion?

22 A I went back to my room.

23 Q Prior to going back to your room, were you
24 attended to by any trainer, medical staff, doctor?

25 A I mean at the field they gave me ice, and

1 A I don't remember.

2 Q Do you recall what you discussed?

3 A Yes.

4 Q What did you discuss?

5 A How I was feeling.

6 Q What did you tell her?

7 A I don't remember.

8 Q Was she still concerned about you?

9 A Yes.

10 Q Did she still call you every two hours on
11 the fourteenth?

12 A No.

13 Q How many times did she call you on the
14 fourteenth?

15 A I'm not sure.

16 Q After your previous two concussions, your
17 mom took you to the doctor?

18 A Yes.

19 Q Did she tell you to go to the doctor after
20 this concussion?

21 A I believe so.

22 Q Do you recall what she might have said?

23 A No.

24 Q Did you go to the doctor on the
25 fourteenth?

1 A No.

2 Q Why not?

3 A The trainers didn't tell me to go.

4 Q For your previous two concussions did
5 trainers tell you to go to the doctor?

6 A I didn't have trainers.

7 Q Who did you have telling you to go to the
8 doctor?

9 A My mom taking me.

10 Q And your mom told you to go to the doctor
11 after this concussion as well?

12 A Yes.

13 Q But this time you decided not to do what
14 your mom said?

15 A Not exactly.

16 Q What do you mean "not exactly"?

17 A Because at the college level you go under
18 different rules.

19 Q What are the different rules you go under
20 at the college level?

21 A You go through the trainers first.

22 Q Who do speak to second if you speak to the
23 trainers first?

24 A Whoever they refer you to.

25 Q Who did they refer you to?

1 seen by Dr. Kluck?

2 A I'm not sure.

3 Q Are there any other doctors at OBU that
4 you would see for a sports injury besides Dr.
5 Kluck?

6 A No.

7 Q When did you go see Dr. Kluck after you
8 received the concussion on the thirteenth?

9 A I believe it was Friday.

10 Q Why did you go see Dr. Kluck on Friday?

11 A Because I ran into him on Thursday, and he
12 asked how my eye was and told me to come see him
13 for it.

14 Q At that time that you ran into Dr. Kluck,
15 were you experiencing any symptoms from a
16 concussion?

17 A Yes.

18 Q What symptoms were you suffering from?

19 A Headache and nausea.

20 Q Did you tell Dr. Kluck you had headaches
21 and nausea?

22 A No.

23 Q Why not?

24 A Because he didn't seem -- he seemed more
25 focused with my eye.

1 Q Do you view Dr. Kluck's role as having to
2 inquire before you tell him about your symptoms?

3 A I'm not sure.

4 Q Did you think you had a duty or an
5 obligation to tell your doctor that you were
6 suffering from symptoms?

7 MS. VOLD: Objection, calls for a legal
8 conclusion.

9 A I don't know.

10 Q (BY MR. WORD) Were you just hoping that
11 those symptoms would go away?

12 A I'm not sure.

13 Q Your mom was worried about you on the
14 thirteenth, right?

15 A Yes.

16 Q She was still worried about you on the
17 fourteenth?

18 A Yes.

19 Q You'd had a concussion, right?

20 A Yes.

21 Q Your previous doctor, Dr. Archer, had told
22 you three concussions you shouldn't be playing
23 soccer anymore, right?

24 A I believe so.

25 Q So why wouldn't you tell Dr. Kluck you

1 were still having concussion symptoms on Friday
2 when you see him?

3 A I'm not sure if I did or not.

4 Q You said a moment ago that you didn't, so
5 which is it? Did you tell him that you had nausea
6 and dizziness?

7 A I don't remember.

8 Q You don't remember one way or the other
9 what you told Dr. Kluck about your symptoms?

10 A No.

11 Q Did you see Dr. Kluck the same day you ran
12 into him?

13 A I don't think so.

14 Q Did you run into him on a Thursday and see
15 him on a Friday; is that the way you recall?

16 A I believe so.

17 Q What else happened on Wednesday?

18 A I don't know.

19 Q Did your mom continue to call you
20 Wednesday night every two hours to make sure you
21 were okay?

22 A I don't know.

23 Q Was your mom's concern for you lessening
24 on Wednesday?

25 MS. VOLD: Objection, speculation.

1 A I don't know.

2 Q (BY MR. WORD) Were you experiencing
3 headaches on Wednesday?

4 A Yes.

5 Q Mild? severe?

6 A Severe.

7 Q How severe?

8 A Migraine.

9 Q I'm sorry?

10 A Migraine severe.

11 Q How about on Thursday, still having severe
12 headaches on Thursday?

13 A Yes.

14 Q How about Friday, severe headaches?

15 A Yes.

16 Q On Wednesday were you nauseous?

17 A Yes.

18 Q Did you vomit?

19 A No.

20 Q How about Thursday?

21 A I'm not sure.

22 Q Friday?

23 A I'm not sure.

24 Q During the period from Tuesday when you
25 suffered the concussion through Friday, did you see

1 any other medical personnel besides Dr. Kluck?

2 A No.

3 Q Did you speak to any trainers during that
4 period of time?

5 A I'm not sure.

6 Q Did you speak to your coach during that
7 period of time other than the conversation we
8 already discussed on Wednesday?

9 A Yes.

10 Q What other conversation with your coach do
11 you recall?

12 A I'm not sure, just at practice.

13 Q Which practice do you think you spoke to
14 your coach?

15 A I'm not sure.

16 Q Would it have been before the Saturday
17 practice?

18 A Yes.

19 Q So you attended practices between
20 suffering the concussions and that Saturday
21 practice?

22 A I think I did.

23 Q Did you participate in any of those
24 practices?

25 A No.

1 Q Did your coach admonish you in any way for
2 not participating in those practices?

3 A No.

4 Q Did he speak to you at all about whether
5 you should or should not be practicing?

6 A No.

7 Q Did he say anything on Saturday about why
8 it was okay for you not to practice on Wednesday,
9 Thursday or Friday but you must run a lap on
10 Saturday?

11 A No.

12 Q Is there anything else about the Saturday
13 practice that happened with your coach in regards
14 to you practicing or not practicing that you
15 haven't already described?

16 A I'm not sure.

17 Q You don't recall anything else?

18 A No.

19 Q What happened after your coach told you to
20 sit on the sidelines?

21 A I --

22 Q On Saturday, excuse me.

23 A I went to the sidelines and called my mom.

24 Q What did you tell your mom?

25 A I asked her why she had called him, and

1 Q Did she tell you what she spoke about with
2 Coach Denning?

3 A Yes.

4 Q What did she say?

5 A She called him and told him that I was not
6 to be running, and he told her that I was medically
7 cleared and that he was not discussing this with a
8 parent.

9 Q So you decided at that point in time to
10 follow your mother's advice or your trainer's
11 advice?

12 A At that point in time I knew that I wasn't
13 supposed to be running.

14 Q What led you to that realization that you
15 shouldn't be running?

16 A That it was only five days later and I was
17 still experiencing symptoms.

18 Q You were experiencing those symptoms
19 before you ran on Saturday, right?

20 A Yes.

21 Q So what happened between the time before
22 you ran and the time after you ran?

23 A I'm not sure what you mean.

24 Q I'm just trying to understand. It seems
25 to me that your state of being is the same both

1 2009 you had not suffered any concussions?

2 A No.

3 Q Do you recall telling Dr. Archer during
4 your April 2009 visit that this was your second
5 concussion?

6 A I'm not sure.

7 Q Did you tell Dr. Archer that this was your
8 first concussion?

9 A I have no idea.

10 Q Here's Exhibit 5. Have you had a chance
11 to look at that document?

12 (Whereupon Exhibit 5 was marked for
13 identification)

14 A Yes.

15 Q Do you know what Exhibit 5 is?

16 A My medical history and pre-participation
17 physical examination.

18 Q Did you fill out this document?

19 A Yes.

20 Q If you look at the last page, which is
21 marked Palacios-OBU 61, is that your signature at
22 the bottom of that page?

23 A Yes.

24 Q So you provided the information that
25 appeared in this document, right?

1 A Yes.

2 Q If you take a look at the page marked 59,
3 number five describes three concussions and
4 describes them as mild. Did you write that
5 information?

6 A Yes.

7 Q What are the three concussions you had
8 suffered as of the date of this document which is
9 August 17, 2010?

10 A I'm not sure.

11 Q Had you suffered three concussions as of
12 August 10, 2010 -- excuse me, August 17, 2010?

13 A I'm not sure.

14 Q Why did you describe those three
15 concussions as mild?

16 A I don't remember.

17 Q You've only been able to describe for me
18 today two concussions that occurred before this
19 date: one in 2008, and one in 2009. Do you recall
20 a third concussion occurring before the date of
21 this document?

22 A I don't remember.

23 Q Do you think you were wrong when you said
24 you had had three mild concussions on this
25 document?

1 before?

2 A Ummm, 15 I remember when I first got to
3 OBU.

4 Q When you first got to OBU?

5 A (Witness nods head).

6 Q And it's dated August 17, 2010?

7 A Yes.

8 Q And that's your signature bottom of page
9 942?

10 A Yes.

11 Q What is this document, Exhibit 15?

12 A "Warning, Agreement to Obey Instructions,
13 Release, Assumption of Risk, and Agreement to Hold
14 Harmless."

15 Q You're reading that from the front page?

16 A Yes.

17 Q Can you otherwise describe the document
18 for me, tell me what it is?

19 A Paperwork that I had to sign.

20 Q Did you review this document before you
21 signed it?

22 A I'm not sure.

23 Q Why were you required to sign this
24 document?

25 MS. VOLD: Objection, speculation.

1 A No.

2 Q Back to page 931 of Exhibit 16, you see
3 that description of what must take place before a
4 student athlete is allowed to return to the field?

5 A This?

6 Q That section, yes.

7 A Yes.

8 Q Do you believe your coach complied with
9 those rules?

10 MS. VOLD: Objection, calls for a legal
11 conclusion.

12 A I don't know.

13 Q (BY MR. WORD) Why don't you know?

14 A I'm not sure.

15 Q Can you look at the fourth bullet point
16 that says stepwise, return to play. That first
17 bullet reads "no activity, rest until
18 asymptomatic." What does that mean to you?

19 A Rest until I no longer have symptoms.

20 Q Does that mean you can play in a game or
21 practice while you still have symptoms?

22 A No.

23 Q I don't think you need to be a lawyer to
24 understand to make the determination of whether or
25 not your coach adhered to that policy. Do you

1 think he adhered to it or not?

2 A No.

3 Q So he, in fact, instructed you to play, to
4 run, while you were still symptomatic from a
5 concussion, correct?

6 A Correct.

7 Q And you informed him that you were
8 symptomatic?

9 A Yes.

10 Q You informed the trainers that you were
11 symptomatic?

12 A Yes.

13 Q So your coach broke the rule?

14 A Correct.

15 Q If you'll look at the next bullet point,
16 it discusses there a team physician or a designee.
17 Who was the team physician?

18 A I have no idea.

19 Q Would that be Dr. Kluck?

20 A Dr. Kluck or the -- I would assume Dr.
21 Kluck.

22 Q And his designee, could that be a trainer?

23 A Could be.

24 Q And to your knowledge did Dr. Kluck or a
25 trainer conduct a medical reevaluation of you after



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EXHIBIT 39

1 UNITED STATES DISTRICT COURT
2 NORTHERN DISTRICT OF
3 ILLINOIS EASTERN DIVISION
Case No. 11-cv-06356

- - - - -x

4
5 ADRIAN ARRINGTON, DEREK OWENS,
6 ANGELA PALACIOS, and KYLE SOLOMON,
7 individually and on behalf of all
8 others similarly situated,
Plaintiffs,

-against-

9
10 NATIONAL COLLEGIATE ATHLETIC
ASSOCIATION,

11 Defendant.

12 - - - - -x

13
14 April 16, 2013
9:09 a.m.

15
16
17
18 Deposition of KYLE SOLOMON,
19 taken by Defendant, pursuant to
20 Notice, held at the offices of
21 Latham & Watkins LLP, 885 Third
22 Avenue, New York, New York, before
23 Kathleen Piazza Luongo, a Notary
24 Public of the State of New York.

1 Q. But you recall hitting your
2 head when you fell on the ice playing for
3 the Royals?

4 A. At one point.

5 Q. When was that?

6 A. Um, I don't recall exactly when
7 it was, but there was a game when I was
8 playing for the Royals where I definitely
9 hit my head very hard.

10 Q. What do you remember about that
11 incident?

12 A. Um, it was -- I believe it was
13 somewhere in upstate New York, um, I'm
14 not positive who we were playing. All I
15 know is I got hit very hard and my head
16 hit the ice very hard and I don't recall
17 much after that and I had a very bad
18 headache.

19 Q. Did you come out of that game?

20 A. Yes, um, yes, I believe so.

21 Q. Did you tell anyone that you
22 were having, that your head hurt?

23 A. Um hum, yes.

24 Q. Who did you tell?

1 Q. And what about when you played
2 for Peter Masters, you know, how often
3 would your head hit the boards when you
4 were playing?

5 A. Once again, every game.

6 Q. Did you ever hit your head on
7 the ice when you were playing for the
8 Suffolk Juniors?

9 A. I don't recall.

10 Q. What about when you played for
11 Cedar Rapids?

12 A. I don't think so, no.

13 Q. What about when you played for
14 Peter Masters?

15 A. Um, yes.

16 Q. When did that happen?

17 MR. KUROWSKI: Objection.

18 Vague.

19 You may answer.

20 A. It was in 2006, the winter of
21 2006.

22 Q. What do you remember about that
23 incident?

24 A. Um, I caught a pass, there was

1 a pass in my skates that I had to kick up,
2 I looked down briefly and when I looked
3 back up I got an elbow straight to the
4 head and I fell, I went down from that
5 elbow and then hit my head on the ice and
6 went unconscious.

7 Q. How long were you unconscious?

8 A. I don't know.

9 Q. Did you come out of that game?

10 A. Yes.

11 Q. Did you go back into that game?

12 A. No.

13 Q. How did you feel once you
14 regained consciousness?

15 A. Terrible. Uh, well, that -- I
16 don't recall a thing from that entire
17 experience other than what I've been told
18 by other people.

19 Q. Do you remember anything about
20 the game?

21 A. About the game? Um, the last
22 thing I remember is the previous shift I
23 had scored a goal and then that shift I
24 caught that pass and that was the last

1 Q. Do you know if you came off the
2 ice, like skated off the ice?

3 A. After that injury?

4 Q. Yes, after you fell onto the
5 ice.

6 A. No, I was taken off in a
7 stretcher.

8 Q. Was anyone with you at the
9 hospital?

10 A. Both my parents.

11 Q. When you woke up how did you
12 feel?

13 A. Terrible.

14 Q. What occurred, describe how you
15 felt.

16 A. Um, I had reoccurring terrible
17 headaches, um, sensitivity to light,
18 depression, I felt like I was in a fog.
19 Just didn't -- I just didn't feel myself.
20 Um, and I don't know if I mentioned
21 reoccurring headaches.

22 Q. Did you see a doctor while you
23 were in the hospital?

24 A. Yes.

1 Q. What kind of doctor?

2 A. Emergency room doctor.

3 Q. And what did they tell you?

4 A. I don't personally recall but I
5 know that I was diagnosed with a
6 concussion.

7 Q. Did the doctor explain to you
8 what a concussion is?

9 A. I don't recall.

10 Q. Did you know at that time what
11 a concussion was?

12 A. Yes.

13 Q. How did you know that?

14 A. Um, just for being an athlete.

15 Q. Why does being an athlete, why
16 does that mean that you would know what a
17 concussion was?

18 A. Um, just because you're around
19 more injuries, you hear about injuries,
20 um, I didn't know what the symptoms were
21 or what to look for but I knew that if
22 you got hit in the head hard enough and
23 it hurt bad enough it was probably a
24 concussion.

1 A. Yes.

2 Q. Did he say why?

3 A. No.

4 Q. Did you tell your parents that
5 you were having symptoms?

6 A. Yes.

7 Q. What was their reaction?

8 A. They were concerned but I think
9 they -- they knew the risk I was taking
10 by playing Juniors.

11 Q. What risk was that?

12 A. Just that it's a physical game,
13 it's a full contact game, um, however
14 they were very concerned.

15 Q. So they knew there was a risk
16 of head injuries playing hockey?

17 MR. KUROWSKI: Objection.

18 Calls for speculation.

19 A. They were -- they knew there
20 was a risk of injuries.

21 Q. Including head injuries?

22 MR. KUROWSKI: Objection.

23 Calls for speculation.

24 A. Yes.

1 Q. Did you know that when you were
2 playing Junior hockey?

3 A. Yes.

4 Q. Why did you continue to play?

5 A. Because that was my job.

6 Q. What do you mean it was your
7 job?

8 A. That's what I was put on the
9 planet to do.

10 Q. To play ice hockey?

11 A. Yes.

12 Q. What do you mean by that?

13 A. That's all that I ever had any
14 interest in or ever wanted to do and I
15 wanted to do it all day, every day.

16 Q. Even though you knew you could
17 get hurt doing it?

18 A. Yup, yes.

19 Q. The coaches who coached you in
20 the past, did Jim Wright ever talk to
21 about you concussions?

22 A. I don't recall.

23 Q. Did he ever give you
24 instructions on how to report symptoms of

1 A. No.

2 Q. We talked a little bit earlier
3 about a couple head injuries that you had
4 sustained when you were playing hockey
5 before you got to college.

6 You said you hit your head hard
7 while playing for the Royals; right?

8 A. Um hum, yes.

9 Q. And in the winter of 2006 you
10 hit your head on the ice?

11 A. Yes.

12 Q. Did you sustain any other
13 concussions or head injuries while
14 playing hockey before you got to college?

15 A. Yes.

16 Q. When?

17 A. Um, the spring of 2007, I
18 believe.

19 Q. What happened?

20 A. I was playing for the Junior
21 Bruins and went back to retrieve a puck
22 in my own defensive zone and was sort of
23 blindsided and my head hit the glass.

24 Q. And did you come out of the

1 game?

2 A. Um hum.

3 Q. Yes? Is that a yes?

4 A. Yes, I'm sorry.

5 Q. That's okay.

6 How did you feel after you hit
7 your head on the glass?

8 A. I was punchdrunk.

9 Q. What do you mean by that?

10 A. Um, I had -- I was dizzy,
11 saying things that made no sense
12 whatsoever, slurring my words.

13 Q. And do you remember being
14 dizzy and slurring your words?

15 A. I remember from a certain point
16 on, yes.

17 Q. And at roughly what point is
18 that?

19 A. Um, after -- after the hit, um,
20 skating from the bench off of the ice.

21 Q. Did you tell anyone about your
22 symptoms?

23 A. Yes.

24 Q. Who did you tell?

1 A. My coach and my parents.

2 Q. Your parents were at the game?

3 A. Yes.

4 Q. What did your coach say when
5 you told him that you dealt dizzy and
6 punchdrunk?

7 A. He -- I don't remember actually
8 what he said. Yeah, I don't remember.

9 Q. Did he send you back in the
10 game?

11 A. No.

12 Q. Was this Peter Masters?

13 A. Yes.

14 Q. Was there a team doctor on
15 site?

16 A. No.

17 Q. Was there a doctor in the rink
18 generally?

19 MR. KUROWSKI: Objection.

20 Calls for speculation.

21 A. I don't remember.

22 Q. Or a league doctor, an official
23 doctor?

24 A. No.

1 Q. What were your parents'
2 reactions when you told them about your
3 symptoms?

4 A. They were concerned.

5 Q. Did they say why they were
6 concerned?

7 A. Just because I had obviously
8 been hurt.

9 Q. Why was it obvious?

10 A. Because they saw the hit and
11 then they saw the way I was acting after
12 the hit.

13 Q. How soon after you came off the
14 ice did you talk to your parents?

15 A. I don't remember.

16 Q. Was it after the game?

17 A. Um, I don't remember.

18 Q. Did you see a doctor?

19 MR. KUROWSKI: Objection.

20 Vague.

21 A. I don't remember if I saw a
22 doctor after that concussion.

23 Q. Did you think at the time that
24 you had a concussion?

1 A. Um, I wasn't sure.

2 Q. Did you think that was a
3 possibility?

4 A. Yes.

5 Q. Did you ask someone to take you
6 to a doctor?

7 A. I don't recall.

8 Q. Did you miss any hockey
9 practices or games after that head
10 injury?

11 A. I don't remember. It was,
12 yeah, I don't remember.

13 Q. How do you know that that was a
14 concussion?

15 A. Um, now that I am aware of the
16 symptoms, looking back on it, that's how
17 I know.

18 Q. So you've determined that in
19 hindsight you had a concussion then?

20 A. Yes.

21 Q. But a doctor didn't diagnose
22 you with a concussion at the time?

23 A. I don't recall if I saw a
24 doctor or not. There's definitely a

1 A. Student assistants, they were
2 varied.

3 Q. Who were his student
4 assistants?

5 A. I don't remember their names.

6 Q. Did Paul Culina attend
7 practices?

8 A. Yes.

9 Q. Did he travel with the team?

10 A. Yes.

11 Q. What is the first concussion or
12 head injury after you got to the
13 University of Maine?

14 A. Um, in October of 2008.

15 Q. What happened?

16 A. Uh, we were playing against
17 Boston College and I chipped a puck down
18 low into the offensive zone and got
19 blindsided and the right side of my head
20 above my ear, um, hit the ledge on the
21 boards.

22 Q. Did you fall down?

23 A. Yes.

24 Q. Did you lose consciousness?

1 A. I believe so.

2 Q. What makes you think that?

3 A. I don't remember the actual hit
4 but I remember coming to.

5 Q. Did you come out of that game?

6 A. Yes.

7 Q. How did you leave the game?

8 A. I was helped off the ice by
9 Paul Culina.

10 Q. What happened next?

11 A. I was given stitches in the
12 training room to the back of my head that
13 had hit the boards.

14 Q. How were you feeling when you
15 were back in the training room?

16 A. Woozy, I felt concussed.

17 Q. And you had had a couple of
18 concussions before this one; right?

19 A. Um hum, yes.

20 Q. So did you think at the time
21 that you had a concussion?

22 A. Yes.

23 Q. Did you tell anyone that?

24 A. No.

1 Q. Did you tell anyone you felt
2 woozy?

3 A. No.

4 Q. Why not?

5 A. I wanted to play.

6 Q. Did anyone ask you how you were
7 feeling?

8 A. Yes.

9 Q. Who?

10 A. Paul Culina.

11 Q. What did you tell him?

12 A. I told him -- I don't recall
13 exactly what I told him, um.

14 Q. But you didn't tell him that
15 you were feeling woozy?

16 A. No.

17 Q. So you stitched up the cut
18 behind your ear?

19 A. Um hum.

20 Q. And then what happened next?

21 A. I went back to the game.

22 MR. KUROWSKI: I'm sorry, what
23 was your last question?

24 MS. SPELLMAN: What happened

1 next.

2 MR. KUROWSKI: Sorry, the one
3 before that.

4 (The requested portion of the
5 record was read.)

6 MR. KUROWSKI: Thank you.

7 Q. Did you still feel woozy when
8 you went back into the game?

9 A. Yes.

10 Q. When you had previously
11 suffered your concussion, the one we
12 talked about in the winter of 2006 --

13 A. Um hum.

14 Q. -- your doctor told you not to
15 start playing hockey again until your
16 symptoms went away; right?

17 A. Yes.

18 Q. And then this game in 2008 you
19 knew that you still had symptoms?

20 A. Yes.

21 Q. And that you probably had a
22 concussion?

23 A. Yes.

24 Q. And you went back to play

1 anyway?

2 A. Yes.

3 Q. Did you think that was a risky
4 decision?

5 MR. KUROWSKI: Objection. It
6 calls for speculation. Legal
7 conclusion.

8 MS. SPELLMAN: You can answer.

9 A. Yes.

10 Q. Why did you think it was risky?

11 A. Because I had just been hit in
12 the head really hard.

13 Q. What did you think might
14 happen?

15 MR. KUROWSKI: Objection.
16 Calls for speculation.

17 A. I had no idea.

18 Q. Did you play the full rest of
19 the game?

20 A. Yes.

21 Q. How did you feel after the
22 game?

23 A. Terrible.

24 Q. Can you be a little bit more

1 specific? How did you feel?

2 A. Still felt very woozy, um,
3 seeing stars, double vision, terrible
4 headache.

5 Q. Did you tell anyone?

6 A. I, yes, I told -- I told Paul
7 Culina of some of my symptoms.

8 Q. When did you tell him?

9 A. After the game.

10 Q. The same night or same day?

11 A. Yes.

12 Q. Which symptoms did you tell him
13 about?

14 A. I don't recall.

15 Q. What was his reaction?

16 A. He told me to go back to my
17 dorm room and rest.

18 Q. Did you tell him you thought
19 you had a concussion?

20 A. I don't recall.

21 Q. Did he tell you that you might
22 have a concussion?

23 A. Um, yes.

24 Q. Did he give you any

1 instructions on how to treat your
2 concussion?

3 A. I was told to go back to my
4 dorm room and rest.

5 Q. Did he tell you to see a
6 doctor?

7 A. Not at that point.

8 Q. So what did you do?

9 A. I went back to my dorm room and
10 went to sleep.

11 Q. Did you tell anyone else about
12 your symptoms before you went to sleep
13 that night?

14 A. Um, my father.

15 Q. Was he at the game?

16 A. No.

17 Q. How did you tell him?

18 A. Over the phone.

19 Q. What was his reaction?

20 A. I don't remember.

21 Q. Did he tell you to see a
22 doctor?

23 A. No.

24 Q. How did you feel the next day?

1 A. Emergency contact information
2 or emergency information form.

3 Q. It looks like if you look
4 almost at the bottom of the page on line
5 7 --

6 A. Um hum.

7 Q. -- there is a signature?

8 A. Yup.

9 Q. Is that your signature?

10 A. Yup.

11 Q. Did you fill out this form?

12 A. Yup.

13 Q. And it's dated June 22, 2008;
14 right, next to the signature?

15 A. Yes.

16 Q. So you filled this out before
17 you started playing hockey at U. Maine?

18 A. Yes.

19 Q. Looking at box 1, "Do you have
20 or have you ever had any of the
21 following"; do you see a box that says
22 "concussion"?

23 A. Yup.

24 Q. And you checked that "no"?

1 A. Yup.

2 Q. Was that true?

3 A. No.

4 Q. Why did you check no?

5 A. Because I was afraid of my
6 standing at the school on the hockey
7 team.

8 Q. What were you afraid would
9 happen if you checked yes?

10 A. That I would get a call and say,
11 hey, I know we recruited you but you've
12 had too many injuries, thanks but no
13 thanks.

14 Q. Why would they not want you to
15 play for their team if they knew you had
16 concussions?

17 MR. KUROWSKI: Objection.

18 Calls for speculation.

19 A. Because somebody who is
20 injury-prone is not going to play as much
21 as somebody who isn't injury-prone.

22 Q. So you felt like you would
23 improve your chances of playing if you
24 didn't tell them about your concussions?

EXHIBIT 40

Adrian,

I spoke with Mark yesterday. Will be in touch. Thanks

Barbara A. Burke

Director of Athletics

Eastern Illinois University

Charleston IL 61920

217-581-2319

-----Original Message-----

From: Adrian Arrington [mailto:adarrington@eiu.edu]

Sent: Wednesday, August 12, 2009 1:32 PM

To: Burke, Barbara A.

Subject: Can we talk please

Hello Mrs. Burke my name is Adrian Arrington and I am an EIU football player and its my senior year and because of what the trainers are calling seizures i can not play football as of right now and I have been to the Doctors two or three times because of it to see if i am having seizures and the results have come back that I do not have a problem with seizures. But because of their opinion i can not play my last year and this could ruin my chances of doing what i love to do because of her opinion of what might happen and as a man that was raised in a home well grounded in Christ I am not afraid to take a chance on the game I love and something i have put my heart into my whole life. I have sacrificed a lot of things to continue to go to school and play football at EIU and my family and i have to much faith in god to let chance stop something i have been fighting for my whole life. I also have to wait until Aug. 27th to take the same test i have taken at least twice that will show the same thing that i do not have seizures but i still will not be able to play because in their opinion i will have a seizure but i have never had a seizure do to contact and in my whole career i have had one head injury do to contact and that was 2007. Basically what i am saying is that my father and i would love to meet with you to discuss this situation because i want to play and if something does happen i will quit the game on my own terms and my father and i will both sign anything to ensure no legal actions will be taken by use. All I am saying Mrs.

ARRINGTON000002

Burke is i earned the scholarship with hard work in the classroom and on the field and as a man and with all do respect i would like to decide what i do with my life because as a student athlete i have held up my end of what is expected of me and i just want to play and if you could call me at 309-750-4635 i would love to talk to you and thanks for your time.

EXHIBIT 41



FOOTBALL

2012 AND 2013 RULES
AND INTERPRETATIONS

- c. This protection terminates when the kick touches the ground (*Exception: Free kick, par. f below*), when any player of Team B muffs or touches a scrimmage kick beyond the neutral zone, or when any player of Team B muffs or touches a free kick in the field of play or in the end zone (*Exception: Rule 6-5-1-b*) (A.R. 6-4-1-IV).
- d. If interference with a potential receiver is the result of a player being blocked by an opponent, it is not a foul.
- e. It is an interference foul if the kicking team contacts the potential receiver before, or simultaneous to, his first touching the ball (A.R. 6-4-1-II, III, and VIII). When in question, it is an interference foul.
- f. During a free kick a player of the receiving team in position to receive the ball has the same kick-catch and fair-catch protection whether the ball is kicked directly off the tee or is immediately driven to the ground, strikes the ground once and goes into the air in the manner of the ball kicked directly off the tee.
- g. Contact by Team A involving a targeting foul (Rule 9-1-4) or other personal foul that interferes with the receiver's opportunity to catch a kick may be ruled either as interference or as a personal foul. The 15-yard penalty is enforced at the spot where the dead ball belongs to Team B or at the spot of the foul, at the option of Team B.

PENALTY [a-g]—For foul between the goal lines: Receiving team's ball, first down, 15 yards beyond the spot of the foul for an interference foul [S33]. For foul behind the goal line: Award a touchback and penalize from the succeeding spot. Flagrant offenders shall be disqualified [S47].

SECTION 5. Fair Catch

Dead Where Caught

ARTICLE 1. a. When a Team B player makes a fair catch, the ball becomes dead where caught and belongs to Team B at that spot.

- b. When a Team B player makes a valid fair catch signal, the unimpeded opportunity to catch a free or scrimmage kick continues if this player muffs the kick and still has an opportunity to complete the catch. This protection terminates when the kick touches the ground. If the player subsequently catches the kick, the ball is placed where he first touched it (A.R. 6-5-1-I-II).
- c. Rules pertaining to a fair catch apply only when a scrimmage kick crosses the neutral zone or during free kicks.
- d. The purpose of the fair catch provision is to protect the receiver who, by his fair catch signal, agrees he or a teammate will not advance after the catch (A.R. 6-5-5-III).
- e. The ball shall be put in play by a snap by the receiving team at the spot of the catch if the ball is caught (*Exceptions: Rules 6-5-1-b, 7-1-3 and 8-6-1-b*).

EXHIBIT 42

From: Ari Scharg <ascharg@edelson.com>
Sent: Friday, July 31, 2015 2:14 PM
To: Mester, Mark (CH)
Cc: steve berman; Beth Fegan; Joseph Siprut; Spellman, Johanna (CH); Buti, Barb (CH); Jay Edelson; Ben Thomassen
Subject: Re: NCAA MDL -- M. Mester 07-31-15 Correspondence to A. Scharg

Mark-

Thank you for your letter, but we're having a hard time understanding why the information you requested about Mr. Nichols has any relevance to your response to our July 15th filing. As you know from both our conference in chambers and the Court's subsequent minute order (dkt. 182), that filing was limited to the specific issue that Judge Lee asked us to address -- i.e., whether a personal injury class can be certified in this action under Rule 23(b)(3). That filing was not a motion for class certification, and we do not yet have any pleadings on file that identify the specific class representative(s) that we would propose to lead the personal injury class. Further, when Judge Lee discussed this issue with the parties in chambers, he specifically asked whether additional discovery was necessary for the briefing and you never suggested that you needed any.

At the end of the day, the question for the Court is whether a personal injury class can be certified under Rule 23(b)(3), and that inquiry is not dependent on facts specific to Mr. Nichols or anyone else. It therefore seems that the only point of this exercise is to delay this matter from moving forward. We assume that class counsel has a position on this issue and would like them to weigh in as well.

Regards,
Ari

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EXHIBIT 43

From: MARK.MESTER@lw.com
Sent: Monday, August 03, 2015 5:28 PM
To: ascharg@edelson.com
Cc: steve@hbsslaw.com; beth@hbsslaw.com; jsiprut@siprut.com; jedelson@edelson.com; bthomassen@edelson.com; Johanna.Spellman@lw.com
Subject: RE: NCAA MDL -- Response to 07-31-15 E-mail re Nichols Discovery
Attachments: NCAA MDL -- MSM 07-31-15 Letter to A. Scharg.pdf

Ari -- We were surprised and disappointed by your response late Friday to our July 31, 2015 letter. See July 31, 2015 Corresp. fr. M. Mester to A. Scharg. We were especially disappointed given the considerable efforts Class Counsel and the NCAA made to get you the entire discovery record in Arrington on an expedited basis. Discovery obviously should not be a one-way street, but that certainly seems to be the approach you are now taking here. We respond below to the substantive points in your e-mail. See July 31, 2015 E-mail fr. A. Scharg to M. Mester.

First, with respect to the settlement conference in Judge Lee's chambers, we recall the discussion quite differently. We indicated to Judge Lee at the time that we obviously couldn't know for sure whether any discovery would be necessary until we saw what you actually filed. Having now reviewed your submission, however, we believe that the limited amount of information requested in our July 31, 2015 letter is necessary, but we see no reason why this information cannot or should not be provided on an individual basis. See July 31, 2015 Corresp. fr. M. Mester to A. Scharg.

Second, we fundamentally disagree with your position that discovery regarding Mr. Nichols (or any other class representative) would be irrelevant for purposes of the parties' responses to your July 15, 2015 submission. Indeed, this type of discovery is critical to the Court's Rule 23 analysis, and bears directly on whether "a personal injury class can be certified in this action under Rule 23(b)(3)." See May 14, 2015 Minute Entry (Dkt. #182). As such, your suggestion that the feasibility of a personal injury class is "not dependent on facts specific to Mr. Nichols or anyone else" is difficult to square with Dukes and a host of other decisions, all of which make clear that the decision whether a class can properly be certified depends to a considerable degree on the factual underpinnings of the individual and class claims. See, e.g., Wal-Mart Stores, Inc. v. Dukes, 131 S. Ct. 2541, 2551-52 (2011) ("[C]ertification is proper only if the trial court is satisfied, after a rigorous analysis, that the prerequisites of Rule 23(a) have been satisfied. Frequently, that rigorous analysis will entail some overlap with the merits of the plaintiff's underlying claim.") (internal quotation marks and citations omitted); Spano v. Boeing Co., 633 F.3d 574, 583 (7th Cir. 2011) ("Before certifying a class, the district court must do more than review a complaint and ask whether, taking the facts as the party seeking the class presents them, the case seems suitable for class treatment. Before deciding whether to allow a case to proceed as a class action, therefore, a judge should make whatever factual and legal inquiries are necessary under Rule 23. If some of the determinations required by Rule 23 cannot be made without a look at the facts, then the judge must undertake that investigation. Before deciding whether to allow a case to proceed as a class action, therefore, a judge should make whatever factual and legal inquiries are necessary under Rule 23.") (internal quotation marks and citations omitted); Szabo v. Bridgeport Machs., Inc., 249 F.3d 672, 675 (7th Cir. 2001) (same). For example, the necessary superiority analysis would very much depend upon the relative size and nature of the personal injury claims that you propose be aggregated and adjudicated on a class basis. At an earlier hearing, Jay suggested that some or most of those personal injury claims are "five figures, not . . . six figures, not seven figures. . . . \$20,000, \$10,000, \$8,000 . . ." See

July 29, 2014 Hr'g Tr. at 37:5-10. That representation, however, is directly at odds with the NCAA's own experience in litigating the individual concussion cases filed to date. In those cases, the damages being sought are more typically \$1,000,000 or more, and common sense would suggest that someone claiming long-term effects from one or more concussions that occurred while participating in college sports would not limit his or her damages to "\$20,000, \$10,000, \$8,000." See id. But in any event, we asked you to delineate the damages Mr. Nichols will be seeking on his individual personal injury claim precisely so that we can respond to the claims in your July 15, 2015 submission regarding superiority. See July 31, 2015 Corresp. fr. M. Mester to A. Scharg.

Furthermore, if Mr. Nichols does not plan to serve as a representative for the proposed class (as you seemed to be suggesting in your July 31, 2015 e-mail), we believe that itself would present a number of issues, not the least of which being that the absence of a class representative makes the class certification analysis impossible. Moreover, if you are proposing someone else as the representative of your proposed class, we are obviously entitled to know who that person is and are likewise entitled to the information about that person we requested in our July 31, 2015 letter. See July 31, 2015 Corresp. fr. M. Mester to A. Scharg.

Third, we've made very limited requests regarding the claims of your client, on whose behalf this objection is being made, that bear directly on the issues the Court instructed the parties to brief. Moreover, contrary to your assertion that we advanced these requests "to delay this matter from moving forward," we see no reason why these requests should delay these proceedings at all. Indeed, given the deliberately limited nature of our requests, and assuming the prompt production of the requested materials, we see no reason why these requests should or would have any effect whatsoever on the timing of the parties' responses to your July 15, 2015 submission or to the Court's analysis of the pending motion for preliminary approval. In fact, we would hope and expect that you could and will provide us with most of the requested information this week, as we certainly made every effort to expedite our production to you of the materials you previously requested.

We are happy to discuss this issue further with you at your convenience, and we sincerely hope that we will not need to seek the Court's assistance in resolving this matter.

Best regards.

Mark S. Mester

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Email: mark.mester@lw.com

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EXHIBIT 44

From: Jay Edelson <jedelson@edelson.com>
Sent: Tuesday, August 04, 2015 10:35 AM
To: Steve Berman
Cc: Spellman, Johanna (CH); Mester, Mark (CH); <ascharg@edelson.com>; Elizabeth A. Fegan; <jsiprut@siprut.com>; <bthomassen@edelson.com>
Subject: Re: NCAA MDL -- Response to 07-31-15 E-mail re Nichols Discovery

I think that people may be operating under a misunderstanding of the facts. Here they are:

1. Judge Lee asked all of us whether we wanted to submit the issue of whether a class could be certified against the NCAA to him without additional discovery in the context of objecting to the current iteration of the settlement or as a full class cert motion with more discovery.
2. Everyone agreed to the former - in fact that was the express preference of the NCAA and Class Counsel; we were agnostic. (Mark remembers saying that he was reserving the issue of whether he needed more discovery until he saw our brief. That is inaccurate. He said only that he didn't know how long he would need to respond to our brief until he saw it.)
3. The Court then entered a minute order memorializing what happened:

MINUTE entry before the Honorable John Z. Lee: . . . As the Court has previously noted, class and merits discovery already has been taken in the Arrington case, and the parties should incorporate this discovery in their memoranda to the extent necessary. Mailed notice(ca,)

4. On Friday, Mark -- for the first time -- asked for some discovery into our putative class rep ("The Putative Rep") because inter alia it would bear on the issue of superiority (which in turn seems to be based on an argument that Steve never took proper discovery into). Steve agreed that not only would written discovery be appropriate but also that the NCAA should be allowed take his deposition, even though the NCAA did not even request that. This would delay the briefing considerably; something that seems to matter intermittently, to Class Counsel.
5. When we said that we would like some limited discovery as well, the NCAA appeared to be open to it but Steve objected based on the idea that it would delay things. He did not ask what we needed, nor did he have any reason to conclude that what we needed would take longer to get than the considerable time the NCAA and Class Counsel have to respond to our brief, let alone the extended time necessitated by discovery into The Putative Rep.

Our suggestion is as follows: Why don't we agree to convert our objection brief into an actual class cert motion, as Judge Lee discussed with us originally? The NCAA could depose the person we put up as the class rep and take quick written discovery as well. (Class Counsel, I guess, could also participate in the deposition, though we would like to understand whether it opposes adversarial class certification.) We don't need much discovery ourselves; really we just want to understand the basis for Mark's point about the NCAA's experience fighting these cases and why the NCAA thinks the individual cases are worth so much and would be pursued outside of a class action. (If the NCAA is not going to introduce any new facts on this point, we would not need discovery.)

Mark -- I'm happy to jump on the phone to further discuss this. Again, I suggested an in person meeting not to delay things (you'll note how responsive we have been) but because they generally save time (see this email trail as an example).

Best,

Jay

Jay Edelson | Edelson PC

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EXHIBIT 45

From: MARK.MESTER@lw.com
Sent: Wednesday, August 05, 2015 2:05 PM
To: jedelson@edelson.com
Cc: Johanna.Spellman@lw.com; Steve@hbsslw.com; beth@hbsslw.com; jsiprut@siprut.com; bthomassen@edelson.com; ascharg@edelson.com
Subject: RE: NCAA MDL -- Nichols Discovery
Attachments: NCAA MDL -- MSM 07-31-15 Letter to A. Scharg.pdf

Jay – We obviously have somewhat different recollections as to what transpired at the May 13, 2015 settlement conference. To cut to the chase, however, and in the continuing spirit of cooperation, we only intend to address in our response to your July 15, 2015 submission publicly-available documents from the individual cases that have been filed against the NCAA, and we can and will provide all of those documents to you on an expedited basis if you will agree to provide us the limited information requested in my July 31, 2015 letter. There is no need, however, for you to convert your July 15, 2015 submission to a contested motion for class certification in order for us to provide those documents and that information to you, nor do we think it would be appropriate for you to undertake such a conversion for the reasons we explained to the Court at the May 13, 2015 settlement conference. Moreover, it was our clear sense at the May 13, 2015 settlement conference that Judge Lee preferred assessing the likelihood of Mr. Nichols being able to obtain and maintain certification of a personal injury class in the context of his fairness analysis as opposed to deciding what in many respects would otherwise only be a hypothetical motion for class certification.

I am traveling today, but Johanna should be available to discuss this in more detail with you if you wish.

Mark S. Mester

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EXHIBIT 46

From: Jay Edelson <jedelson@edelson.com>
Sent: Tuesday, August 11, 2015 2:47 PM
To: Spellman, Johanna (CH)
Cc: Mester, Mark (CH); Ari Scharg; Ben Thomassen
Subject: Re: NCAA MDL -- Nichols Discovery

Johanna,

When we spoke nearly a week ago, we ended the conversation with three questions that you were going to ask Mark. I asked at the time if you could promptly get back to me when you would have those answers to us. You told me you would.

Since then we have heard nothing.

It's hard to reconcile your silence with your supposed pressing need to get discovery.

Best,

Jay

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Pursuant to requirements related to practice before the U.S. Internal Revenue Service, any tax advice contained in this communication (including any attachments) is not intended to be used, and cannot be used, for purposes of (i) avoiding penalties imposed under the U.S. Internal Revenue Code or (ii) promoting, marketing or recommending to another person any tax-related matter.

EXHIBIT 47

From: MARK.MESTER@lw.com
Sent: Wednesday, August 12, 2015 5:33 PM
To: jedelson@edelson.com
Cc: Johanna.Spellman@lw.com
Subject: NCAA MDL -- Nichols Discovery

Jay -- Please find below our responses to the three questions you raised during your call with Johanna last week.

First, you asked if the NCAA intends to seek Mr. Nichols' deposition. With respect to that issue, my July 31, 2015 letter contains the only information we are seeking from Mr. Nichols at this time as we prepare our response to your July 15, 2015 submission. See July 31, 2015 Corresp. fr. M. Mester to A. Scharg. Assuming that you are able to provide the information requested, we do not plan to seek to depose Mr. Nichols in connection with our response to your July 15, 2015 submission.

Second, you asked if the NCAA would oppose your efforts to take discovery in connection with the briefing of your July 15, 2015 submission. As I noted in my July 31, 2015 letter, the NCAA and Class Counsel provided you with all of the discovery in Arrington, and during the May 13, 2015 settlement conference, you told Judge Lee that you did not need additional discovery. Accordingly, we are not entirely sure what you have in mind nor were you specific in that regard on your call last week with Johanna. Nevertheless, we would be, in the spirit of cooperation, willing to consider any specific request for discovery that you might make, provided that it did not unduly prolong the existing schedule. (If the discovery you want includes depositions, we would want to reconsider our position on a brief deposition of Mr. Nichols, but our view remains that we should be able to respond to your July 15, 2015 submission without a deposition of your client.)

Third, you asked what our position would be if you said that you were willing to provide the information requested in my July 31, 2015 letter but that doing so would require pushing back the briefing schedule. We, of course, would have no objection to a modest extension of the existing schedule to allow you to provide us the information requested or (as discussed above) to facilitate targeted discovery by you.

We also wanted to follow up on one other issue that came up on the call last week. We raised on the call and in my earlier letter your new class definition and the requirement of a "documented concussion," which we understand to be one of the two criteria for membership in Mr. Nichols' newly-proposed class, the other being a "documented diagnosis." See Nichols Mem. (Dkt. #201) at 1. During our call and in my July 31, 2015 letter, we expressed our understanding that the intended source for "documented concussions" was the Injury Surveillance System maintained by the NCAA, which you have been provided. See July 31, 2015 Corresp. fr. M. Mester to A. Scharg. On the call last week, however, you seemed to indicate that was not the case. If it is in fact not the case, we would appreciate it if you would identify for us what the intended source for "documented concussions" is in the class definition in your July 15, 2015 submission, as we are aware of no other source.

Best regards.

Mark S. Mester

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EXHIBIT 48

From: Jay Edelson <jedelson@edelson.com>
Sent: Wednesday, August 12, 2015 6:16 PM
To: Mester, Mark (CH)
Cc: Spellman, Johanna (CH)
Subject: Re: NCAA MDL -- Nichols Discovery

You did not get the second question right. We asked whether you would have an objection to us taking the depositions of the current settlement class reps. (If so, you can also depose who we put up.)

In terms of the third question, you make it seem like we want to extend the briefing schedule. We do not. You have had more than enough time. My question was "with the understanding that it would take time for us to comply, is it still your position that you need it given that it will delay things further?". It sounds like you are saying "yes," but please confirm.

Assuming you agree to the clarifications above, we would not oppose your motion to amend Judge Lee's order to allow you the requested discovery. We reserve the right to ask the court to (1) allow us to file a supplemental brief addressing the issue of whether our proposed class rep is adequate and to (2) convert the objection into a motion for class certification.

Sent from my iPhone

EXHIBIT 49

From: Mester, Mark (CH)
Sent: Wednesday, August 12, 2015 6:38 PM
To: Jay Edelson
Cc: Spellman, Johanna (CH)
Subject: RE: NCAA MDL -- Nichols Discovery

On the second question, we would not object to you taking the depositions of the current class representatives, and it sounds like in that event, you would not object to us deposing Nichols.

On the third issue, I think you are misreading what I wrote. I don't think anyone wants to unduly delay the resolution of the pending motion for preliminary approval, but we do think we need the information requested in my July 31 letter in order to fully respond to your July 15, 2015 submission, such that we would be willing to agree to short delay so that you could obtain that information. We also would want to avoid, however, the need to file multiple briefs, so if additional depositions are going to be taken by you or us, it would seem logical to defer the submission of our brief (and your reply) until those depositions have occurred, though I suppose the only deposition we would have to take for sure before we filed our response would be Mr. Nichols. To answer your specific question, however, you are correct. We are saying "Yes" and that we understand getting the information from you might delay things a bit. We are ok with that.

As for your third paragraph, if there is going to be a motion to amend, I think it should be a joint motion, as we would all be asking for something and presumably would all agree. In terms of a supplemental brief, however, can't you address that issue in your reply? And while we can't preclude you from asking to have your July 15, 2015 submission converted to a motion for class certification, we do not believe that is what the Court had in mind nor do we think it would really make sense under the circumstances.

Last but not least, you didn't address the question of what the source will be for "documented concussions" in your new class definition. We would, in turn, appreciate an answer from you to that question, as the Injury Surveillance System is the only such database we are aware of.

Best regards.

EXHIBIT 50

From: Jay Edelson <jedelson@edelson.com>
Sent: Wednesday, August 12, 2015 7:24 PM
To: Mester, Mark (CH)
Cc: Spellman, Johanna (CH)
Subject: Re: NCAA MDL -- Nichols Discovery

That all sounds basically fine. We can address the adequacy issue in our reply so long as you then don't seem to get another brief. Our argument will be simple:. He understands the suit and has no conflicts.

You owe saying Nichols, but just to be clear we have not decided who we would put up as class rep. We would have to think about that, but would give you the info on whoever we choose (and the dep).

In terms of a joint motion, Berman is taking the position that we have delayed things. Because of that (as silly as the charge is) we don't want to be in a position where we are asking for a further delay. As we have made clear, we believe there is no need for this discovery or any delay. Nevertheless we are willing to accommodate you. Thus we would want the motion to make clear that you are the one seeking this relief and that we are fine with what we agreed.

I didn't mean to duck your last question; I just missed it. As I explained to Johanna, the database you identified is not part of the class definition. The definition speaks for itself.

Finally, and likely not related, I saw that arrington filed a motion today. If the NCAA has a position on the impact of what arrington ends up filing, please let us know as it likely impacts is as well.

Sent from my iPhone

EXHIBIT 51

From: MARK.MESTER@lw.com
Sent: Thursday, August 13, 2015 2:47 PM
To: jedelson@edelson.com
Cc: Johanna.Spellman@lw.com
Subject: RE: NCAA MDL -- Nichols Discovery

Jay – To be clear, we don't necessarily think you need to depose the original class representatives in Arrington for purposes of Mr. Nichols' objection, and in the interest of expediency, we were and are prepared to forego the deposition of Mr. Nichols for purposes of preparing our response to your July 15, 2015 submission if we can just get the limited and basic information requested in our July 31, 2015 letter. See July 31, 2015 Corresp. fr. M. Mester to A. Scharg. We were, instead, agreeing to your deposition of the class representatives in Arrington as an accommodation to you. As a result, I wouldn't be comfortable representing to the Court that the party principally seeking depositions at this juncture is the NCAA, because that really isn't the case. On the other hand, however, I don't think anyone is to blame for any delay, and I am confident that Steve, we and you could all get on the same page on that issue. Moreover, we have no interest or desire in depriving you of information or discovery you need, and we want to cooperate with you in any way we can.

As for Mr. Nichols as the class representative, we can only go on what we know. Mr. Nichols is the only person you have appeared on behalf of, and he is obviously the person who is making the objection in furtherance of which you most recently made the July 15, 2015 submission on his behalf. Mr. Nichols is likewise the person who is now proposing a new personal injury class, although we note that class differs materially from the class he proposed in his pleading. We are, in turn, preparing our response to your July 15, 2015 submission on the assumption that Mr. Nichols is your client and is the person making the objection to the Amended Settlement Agreement. If that is not the case, however, it would be helpful to know that as soon as possible.

In terms of the Injury Surveillance System, I understand that the database itself is not part of the new class definition Mr. Nichols is now proposing, but my question was and is whether you intend for the Injury Surveillance System to be the source of "documented concussions" for purposes of the class definition Mr. Nichols is proposing. See Nichols Mem. (Dkt. #201) at 1. If it is not, then we would like to know what is, as we are not aware of any other such source.

We will be speaking with the NCAA in the next day or two about the motion filed yesterday on behalf of Mr. Arrington. Any light you could shed on that motion, however, would be most appreciated.

Best regards.

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EXHIBIT 52

From: Jay Edelson <jedelson@edelson.com>
Sent: Thursday, August 13, 2015 3:10 PM
To: Mester, Mark (CH)
Cc: Spellman, Johanna (CH); Ari Scharg; Ben Thomassen
Subject: Re: NCAA MDL -- Nichols Discovery

I'll take your points in turn. First, I never said that you should take responsibility for the conducting of depositions. I said the delay. Our taking the class rep deps won't delay anything since we can do that immediately. Why don't you simply draft a motion and you can make clear that you are now seeking discovery which will delay things and we have reached an accomodation where I get to take the class rep deps?

Second, Mr. Nicols has filed an objection to preliminary approval. As part of that he argues that Class Counsel sold away valuable rights (including the right to pursue a class personal injury claim) for little or nothing. That procedurally is different than moving for class certification. In the context of an objection, an objecting party need not propose a class representative, nor is it even relevant if s/he were an appropriate class representative. Thus, someone could legitimately object to a settlement by saying "the class representative has a conflict and should be replaced even though I personally have no interest in being a class representative.) I have made this point many times and won't continue to go over that. In terms of telling you who we would theoretically put forward as a class representative, as I said since you have just raised the issue, we will think about it. As I believe you have noticed, we have not struggled getting back to you promptly.

Third, I explained this in depth to Johanna and would refer you to her notes. I don't want to keep belaboring points; it is inefficient.

Finally, I don't know what light you think we could shed on Mr. Arrington's motion. I would guess that you and (especially) class counsel would have more insight than I do. I also would suspect that Mr. Arrington's lawyers would be natural people to ask if you had any questions. We are trying to go slowly and understand everyone's position before reaching our own conclusions.

-Jay

EXHIBIT 53

From: MARK.MESTER@lw.com
Sent: Friday, August 14, 2015 3:36 PM
To: jedelson@edelson.com
Cc: Johanna.Spellman@lw.com
Subject: RE: NCAA MDL -- Nichols Discovery

Jay – We seem to be going in circles. I don't think we should have to take responsibility either for the decision that depositions are now necessary or for delay. As I think I have said several times, the only information we need in order to respond to Mr. Nichols' July 15, 2015 submission is what we requested now nearly two weeks ago in our July 31, 2015 correspondence, and we are prepared to forego Mr. Nichols' deposition for the preparation of that response. See July 31, 2015 Corresp. fr. M. Mester to A. Scharg. I have to believe, however, that you could have provided the bulk of that information to us by now (if not all of it), if you had simply honored our request when it was first made, but in any event, we are confident you can still provide us that information without requiring any modification of the existing briefing schedule. And to the extent the information we asked Mr. Nichols to obtain from San Diego State is the stumbling block you are worried about in terms of timing, we are willing to forego that material entirely, in which event I am confident you could get us the requested information next week at the latest. See id. To the extent, however, we would need to delay the filing of our response by a few days or a week in order for you to provide any remaining information to us, I don't think anyone will have a problem with that, though we hope no modification of the existing schedule would in fact be necessary.

In terms of depositions, we do not oppose your request to take the depositions of the class representatives in Arrington, but we don't necessarily agree that those depositions would be necessary. Instead, we would simply be agreeing to not oppose your request as an accommodation to you and in the spirit of cooperation. If you decide you need to depose those individuals, however, we do think that could and likely should impact the existing briefing schedule a bit, since it is likely we would want to incorporate into our response to your July 15, 2015 submission testimony obtained from those individuals and we would not want to have to make a supplemental submission after the depositions are completed nor do we anticipate the Court would be comfortable with us doing so. Accordingly, we are somewhat concerned that depositions could have a material impact on the schedule, but we would certainly work with you and with Class Counsel to minimize that impact as much as possible. If you decide to take depositions, however, we also think it would make sense in that event for us to depose Mr. Nichols.

In terms of Mr. Nichols and standing, I fully understand the difference between an objection and a motion for class certification. While I understand your July 15, 2015 submission to be in support of Mr. Nichols' objection, we naturally assumed that Mr. Nichols would be the class representative for his newly-proposed class, in part because there was no indication to the contrary in your last submission or at any other juncture in this litigation. I understand, however, that you may be currently reevaluating that issue, and all I am asking is that you let us know as soon as possible when you reach a decision, as we are continuing to prepare our response to your July 15, 2015 submission under the assumption that Mr. Nichols would be the class representative. To the extent you decide that Mr. Nichols would not be the class representative, we obviously reserve all rights with respect to Mr. Nichols' standing to make the objections he has made to date as well as to whoever else you would be proposing as the class representative.

On the issue of the Injury Surveillance System, I have conferred at length with Johanna regarding what you told her on your last call with her, and I am confident I fully understand your position. You have indicated that the source for "documented concussions," as that term is used in Mr. Nichols' newly-proposed class definition, is not the NCAA's database. To date, however, you have assiduously avoided telling us what the source for that actually is, and we are simply asking that you identify that source to us. Since the Injury Surveillance System is the only such database or compilation we are aware of that would constitute a compilation of "documented concussions" for NCAA student-athletes dating back to 2002, we were surprised to learn that you

were not relying on it, but we look forward to learning in advance of the filing of our response what you are instead intending to rely upon.

Finally, with respect to Mr. Arrington's motion, you have advised us in the past that you are working with Mr. Clifford, and Mr. Clifford was identified as one of your co-counsel on one or more of the submissions you have made on Mr. Nichols' behalf. So we naturally thought you might have some sense of what motivated the filing on August 12, 2015.

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EXHIBIT 54

From: Jay Edelson <jedelson@edelson.com>
Sent: Friday, August 14, 2015 4:38 PM
To: Mester, Mark (CH)
Cc: Spellman, Johanna (CH); Ari Scharg; Ben Thomassen
Subject: Re: NCAA MDL -- Nichols Discovery

I agree that this is becoming less than productive. Why don't you circulate a motion and we can look at it?

In terms of your suggestion that Nichols might lack standing to make certain arguments if he is not putting himself up as a class representative, I don't know what you are talking about. Please direct me to case law that could in any way support your position. (If you have none, then one wonders why you would make such a threat.)

In the issue of our class definition, you have now (like before) said you had complete confidence that you understood our position on the call, only to misstate our position. It is not productive. If Johanna has notes, then you know our position. If she doesn't, I can restate it again, though I will be frustrated in doing so.

In terms of arrington, I think the press accounts shed light on his "motivations". Is that what you're asking?

Sent from my iPhone

EXHIBIT 55

From: MARK.MESTER@lw.com
Sent: Saturday, August 15, 2015 9:24 PM
To: jedelson@edelson.com
Cc: Johanna.Spellman@lw.com
Subject: RE: NCAA MDL -- Nichols Discovery
Attachments: NCAA MDL -- MSM 07-31-15 Letter to A. Scharg.pdf

Jay - For our preferred solution, I don't think we need a motion. We simply need you to agree to provide us with the information that we requested in our July 31, 2015 letter. See July 31, 2015 Corresp. fr. M. Mester to A. Scharg, a copy of which is attached for your convenience. If you think you will need a little extra time to obtain that information, let us know how much time you need, and we will draft a motion extending the schedule by that amount, though I assume it would just be a matter of days or a week at most.

If you want to address the depositions of the class representatives in Arrington, then I think that's a motion you will need to draft. We will not oppose that motion, however, provided we can agree on a process that doesn't unduly drag things out.

I am out of town this weekend but will provide you authority on the standing issue. To be clear, however, I am not saying that Mr. Nichols has to be holding himself out as a class representative in order to have standing to object (though he is in fact already holding himself out as a class representative in his existing pleading). Instead, I am saying that if Mr. Nichols doesn't share the interest he is advocating in his objection, he shouldn't and doesn't have standing to make that particular argument in support of his objection. He can certainly object, but his objections need to be tied to his own interests and not be based on the interests of others with whom he does not share such interest. Otherwise, any class member could object to a settlement even though the settlement would not prejudice that person in any way, shape or form.

On the class definition, I certainly have no interest in frustrating you, but clarity is important and neither Johanna nor I are certain that we understand your position. Johanna has notes, we have reviewed them, and they do not identify what source of information you intend to rely upon in identifying persons with a "documented concussion." We understand you do not intend to rely upon the Injury Surveillance System, but we don't know what (if anything) you intend to rely upon instead. If you can simply identify what source or sources of information you intend to rely upon, then we will have what we need. Conversely, if you really are not willing to tell us what source of information you intend to rely upon, then please just tell us that, and we will advise the Court of your unwillingness in our response. What you said to Johanna on your call was that you weren't sure you had any obligation to tell us what the intended source would be for "documented concussions." We, however, obviously disagree and strongly suspect that there is no such source, but if that remains your position, then we will obviously have no choice but to apprise the Court of your position.

Best regards.

Mark S. Mester

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EXHIBIT 56

From: Jay Edelson <jedelson@edelson.com>
Sent: Saturday, August 15, 2015 9:44 PM
To: Mester, Mark (CH)
Cc: Spellman, Johanna (CH); Ari Scharg; Ben Thomassen
Subject: Re: NCAA MDL -- Nichols Discovery

You can file a motion. I will not do it informally. I made this clear from the start.

And our whole point in compromise was that you would get things and so would I. If you are now saying that you simply won't oppose us getting to take the depositions, then that is not a compromise and, it would appear, we have wasted a bunch of time.

I think you misunderstand the rules for objecting. I look forward to seeing your case law supporting your view.

I stand by the position I took with Johanna on our class definition. As I explained to her, I know of no mechanism where a litigant gets to ask questions about the brief of opposing party. That being said, the definition of "documented" is meant by its plain meaning.

Sent from my iPhone